

*March* 1938

# TECHNOLOGY

## REVIEW

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# technology review

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## THE TABULAR VIEW

WRITING in The Review of last December, John E. Burchard, '23, said: "The work of Prescott and Underwood was outstanding in its comprehensiveness, in its accuracy, and in its fundamental nature. . . . There is no question but that the three classic papers of these two M.I.T. men in the years 1895 to 1898 marked the most important step [in the preservation of food] since Pasteur." The Prescott to whom Mr. Burchard referred is dean of science at the Institute, head of the Department of Biology and Public Health, and author of the article, "Putting Germs to Work," on page 215. Aside from his work as an educational administrator, Dean SAMUEL C. PRESCOTT, '94, has devoted his life to the applications of biology to industry. During the War he was in charge of food research and the problems of storage in Army training camps. In 1918-1919 he was in charge of the division of dehydration of the Bureau of Chemistry in Washington. For three years he was director of the research laboratory of the United Fruit Company in Costa Rica, where he made notable studies in food preservation, and for 17 years he was director of the Boston Biochemical Laboratory. ¶ In addition to his teaching activities in the Department of English and History at the Institute, FREDERICK G. FASSETT, JR., (page 220) is one of The Review's most dependable and stimulating contributors and one of the editors of Research Reports, published at the Institute. Only once in recent years has The Review included poetry (March, 1936), and at that time, too, Professor Fassett was the poet. ¶ ARTHUR C. WATSON (page 221) is secretary of, and technical adviser to, the committee on the Technology Museum. In this capacity he had charge of arranging the splendid Henry P. Kendall loan exhibition of whaling, now to be seen in Technology's Nautical Museum. Mr. Watson, sometime assistant curator of the New Bedford Whaling Museum, is an authority on the great whaling industry which once brought romance and wealth to New England ports.

A LETTER by Henry Bowen Brainerd of Wellesley, Mass., recently published in the *Harvard Alumni Bulletin*, seemed to us to be an unusually perceptive statement of the objectives of The Review: "As I see it," wrote Mr. Brainerd, "the *Review* is primarily a good magazine in the modern style, edited for the type of men who graduate from M.I.T. and rather emphasizing news of the Institute. It is certainly a magazine which interests readers whether or not they are graduates of the Institute. In addition to news from Cambridgeport, it carries news of science and engineering from all parts of the world, generally with an alumni angle, but never with the alumni angle obscuring the news interest. Then it carries photographs, good photographs and lots of them, many by outstanding photographers, many that would win salon prizes. There must be an average of two photographs per page, and the technical nature of their subjects is not allowed to interfere with their quality as photographs. . . ."

No. 5

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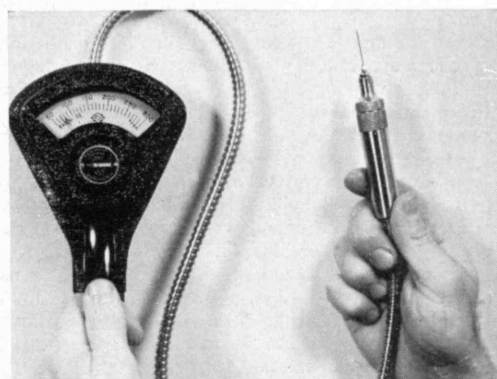
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# MAIL RETURNS

LETTERS AND PICTURES FROM REVIEW READERS

## Mercury Fountain

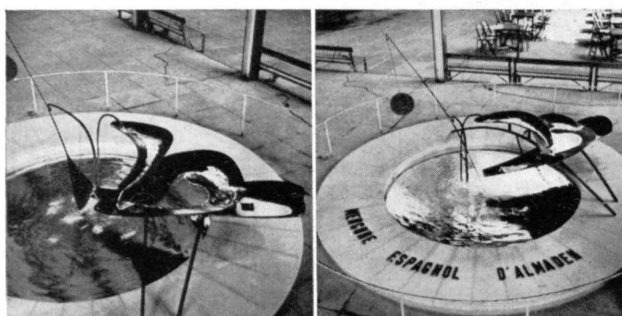
FROM WILLIAM B. F. DREW:

... Under the heading of "Paris Exposition" [November issue] your reporter missed a scoop, or was it because you just do not advertise your competitors?

Alexander Calder, one of the best of the modern artists, whose mercury fountain is illustrated, was a splendid engineering student and graduated from Stevens, Class of '19. It is too bad there was not a description of the working of that fountain, because it is very interesting — especially the finely balanced movements that were developed. If you look at the picture, you will note that it is a series of fulcrums and levers.

New York, N. Y.

FROM ALEXANDER CALDER:



Hugo P. Herdeg

The [above] photographs give a pretty good idea of the fountain. A pump and a reservoir were placed under the stairs in the inclosed part of the building, and a large pipe to take the mercury from the basin to the pump and a small one to bring it back, under pressure, from the reservoir to the fountain, were laid under the paving. Due to the weight of the mercury, the extreme height permitted me from which to spill it was about a meter. Also, as the mercury splashes and wastes itself in very fine globules in all directions when permitted to fall for more than two or three inches on another surface of mercury, it was necessary to keep the whole thing very low.

So I used three plates, of irregular form, and permitted the mercury to flow across one after the other, spilling over a lip at the end of each plate. This gave the spectator the opportunity to look down upon the surface of the mercury as it flowed and also increased the effective surface of the mercury and varied its forms.

There were also limitations as to material — those I was given to work with being glass and polished steel. But the basin was made of concrete, lined with pitch; so I discovered that that, too, was permissible. This was very fortunate, as pitch has a flat black surface, which gives the strongest possible contrast to the mercury, whereas glass or polished steel is much closer to the mercury in color value. So I made the plates of steel, and once they were in position, had the working surfaces covered with pitch, and the supports and under surfaces painted black. First I had the plates made according to my design, and then took them to the fountain, supported them on a falsework, and then designed the supports.

As the design, thus far, was low, and the movement very gentle, I added a mobile element, which would increase the movement, add color, and also give the name of the mines from which the mercury came. This was composed of a rod, slung from a spot near its center and ending in a flat plate of irregular form, at the bottom, whose weight was sufficient to support a second, finer rod and maintain a steep slope. The upper rod had at its bottom end a circular disk, painted red, and at its upper extremity it flaunted, made of a single piece of brass wire, the name of the mines, Almaden. . . . Thus there were five colors in the composition: brass, red, flat black, the gray of the stones, and the mercury.

The movement was caused by the jet of mercury flowing from the third plate, which was a sort of chute, with dams, tapping against the heavy plate, causing a swaying of the red disk and of the name Almaden.

Curiously enough, there was no mercury available at the time of the conception and construction of the fountain. So I bought some ball bearings and permitted them to flow over the surfaces of the small, rough model which I had made. And thus we were able to speculate as to what would happen with the mercury, once we had it. The mercury arrived exactly in the middle of the afternoon of the press opening of the pavilion. There were 200 liters valued, I was given to understand, at half a million francs. One hundred and fifty liters were put into circulation, and the rest held in reserve to take care of losses due to splashing, seepage, and so on.

Roxbury, Conn.

## Any Number of Answers

IN December, Howard M. Edmunds, '05, submitted this problem: "There is one (and only one) set of five right triangles whose sides are all whole numbers and whose areas are all equal. What are they?" This brain teaser resulted in so much discussion that we requested Professor Philip Franklin of the Institute's Department of Mathematics to review it. Here is his response:

FROM PHILIP FRANKLIN:

The statement of the problem, "Find a set of five right triangles (there is only one) having integral sides and the same area," is inexact. Not, as some readers suggested, because there is no answer, but because there are any number of answers. In fact, it was pointed out by the French mathematician, Fermat, in 1640 that if  $a, b, c$  are three integral sides of a right triangle, so that  $a^2 + b^2 = c^2$ , then  $4abc^2, c^4 - 4a^2b^2 = (a^2 - b^2)^2, c^4 + 4a^2b^2$  are the sides of a second right triangle having the same area as the one with sides  $2ac(a^2 - b^2), 2bc(a^2 - b^2), 2c^2(a^2 - b^2)$ , formed from the first by scaling up the sides. This process may be repeated, starting with the second triangle, and scaling up the sides of the pair just found to obtain three, and so on. Thus the problem has a solution even if the five be replaced by some greater number, and one triangle of the set may be taken similar to any particular right triangle with integral sides.

The process just described leads to enormous numbers. If, for example, we start with 4, 3, 5 in place of  $a, b, c$  and form a set of five, the common area will be a number of more than 250 digits. We may obtain sets with a smaller common area by a modification of the process. We start with a set of three triangles of equal area, using a rule given by Diophantus of Alexandria (circa 300 A.D.). Diophantus observed that if  $x, y, z$  are three integers such that  $x^2 + xy + y^2 = z^2$ , then  $2xz, z^2 - x^2, x^2 + z^2; 2yz, z^2 - y^2, y^2 + z^2; 2(x+y)z, (x+y)^2 - z^2, (x+y)^2 + z^2$  give integral sides of three right triangles, each of which has its area equal to  $xyz(x+y)$ . We note that all such sets  $x, y, z$  without common factors may be found by taking two whole numbers  $p$  (not divisible by 3) and  $q$  (having no factor in common with  $p$ ) and putting  $x = p(2p+q), y = q(2p+3q), z = p^2 + 3pq + 3q^2$ .

If we take  $p=q=1$ , and then use the process of Fermat on two of the three triangles, we find a set of five triangles with a common area  $210(2 \times 29 \times 41 \times 23 \times 37 \times 47)^2$ , approximately  $1.9 \times 10^{18}$ . If we write  $A = 29 \times 41$  and  $B = 23 \times 37 \times 47$ , the area is  $840A^2B^2$  and the sides are as follows: 21, 20, 29, each multiplied by  $2AB$ ; 35, 12, 37, each multiplied by  $2AB$ ; 112, 15, 113, each multiplied by  $AB$ ;  $2 \times 840 \times 841 = 2 \times 840(29)^2, (841)^2 - (840)^2 = 41^2, (841)^2 + (840)^2$ , each multiplied by  $B$ ;  $2 \times 840 \times 1369 = 2 \times 840(37)^2, (1369)^2 - (840)^2 = (23 \times 47)^2, (1369)^2 + (840)^2$ , each multiplied by  $A$ .

E. G. Allen, '00, called my attention to the fact that the English puzzler, Dudeney, recently gave two sets of four triangles of the same area, with much smaller sides, by guessing a fourth triangle to go with certain triplets of Diophantus. For  $p, q=1, 3$ , the sides are 660, 259, 709, each doubled; 140, 1221, 1229, each (Concluded on page 204)





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## MAIL RETURNS

(Concluded from page 202)

doubled; 2960, 231, 2969; and the fourth, found by trial, is 6160, 111, 6161. For  $p, q = 1, 5$ , the sides are 4080, 1001, 4201, each doubled; 528, 7735, 7753, each doubled; 17472, 935, 17497; and the fourth, found by trial, is 1428, 715, 1597, each multiplied by 4. However, when we try to find a fifth triangle by Fermat's method to go with either set, the areas are, in the best case, about  $2.3 \times 10^{22}$  and  $4.9 \times 10^{25}$ , respectively, or somewhat larger than the area for the set given above.

But there are sets with smaller areas than that; for example, the set with area  $2 \times 3 \times 11 \times 19 (3 \times 4 \times 5 \times 7 \times 13)^2 = 37383746400$ , approximately  $3.7 \times 10^{10}$ . The sides are:

176 =  $16 \times 11$ , 57 =  $3 \times 19$ , 185, each multiplied by  $(2 \times 3 \times 5 \times 7 \times 13)$   
304 =  $16 \times 19$ , 297 =  $3 \times 9 \times 11$ , 425, each multiplied by  $(2 \times 5 \times 7 \times 13)$   
132 =  $12 \times 11$ , 475 =  $25 \times 19$ , 493, each multiplied by  $(3 \times 4 \times 7 \times 13)$   
836 =  $4 \times 11 \times 19$ , 1323 =  $27 \times 49$ , 1565, each multiplied by  $(4 \times 5 \times 13)$   
32448 =  $64 \times 3 \times 169$ , 256025 =  $11 \times 19 \times 25 \times 49$ , 258073, each multiplied by 3

I obtained the foregoing by a tentative method involving the construction of a table of the first few hundred possible areas of integral right triangles having no large prime factors.

Cambridge, Mass.

## Toward Better Automobiles

FROM ALFRED P. STEENSEN, '26:

While very much in sympathy with the goal of better automobiles, I find myself differing from the opinions in "Toward Better Automobiles" [December Review]. To begin with, I object to the use of the smear word, "gadget." This term appears to be indiscriminately applied to portions of the car not useful to the particular person. . . .

While yearly models introduce much waste, continuous improvement is desirable, and competition is inescapable. The 25-year car is unsound on at least three counts: The car of 25 years ago—1913—would not be popular today, even as a gift. The car of today, in 25 years, or 1963, will probably not represent the ultimate in transportation. The third point is that the extra cost of building for 25 years' service would bring the purchase price so much higher that the cars could not be generally sold. . . .

The criticisms of glaring headlights, difficult tire changing, and heavy corner posts appear to me to be justified. However, I question the danger in sloping, divided windshields. The middle barrier does not obstruct vision unduly, and the varying angle is little worse in the divided windshield. . . .

The criticism of the development of more comfortable automobiles is unfortunate. It is only recently that comfort has been considered in design, and while there have been unfortunate results, such as underestimation of speed, the present designs are far from the desirable limit. In all cars the rear seat, being virtually over the rear axle, is still less comfortable than the front seat near the middle of the wheel base.

I agree with Mr. Exley [February Review] that the modern car is unnecessarily heavy. As he says, eventually automobiles may advance with the technical sciences. Mr. Eaton ['17] appears to be very optimistic in hoping for control on ice comparable to control on dry pavement. However, improvement should be readily obtained, particularly by improved weight distribution. The overhanging rear end in the modern car appears to make rear-wheel skids more common, outweighing the advantages of four-wheel brakes. Mr. Miller ['02] appears to have described the Stout Scarab—without overhang of body over wheels, and engine in rear. Broadly, his suggestion appears reasonable—larger inside and smaller outside. At the present time the price limitation seems to rule it out. Mr. Whitmore ['38] seems to feel that now that the better automobile has been specified, some manufacturer should make it. This car must be free from gadgets, not too comfortable or powerfully engined, with bumpers on all four sides, internally operated jacks, and summer cooling devices. On the contrary, it appears that scientists and engineers are essentially no different from other car owners. They have their prejudices and pet peeves, and one engineer's meat is some scientist's poison.

Sharon, Mass.





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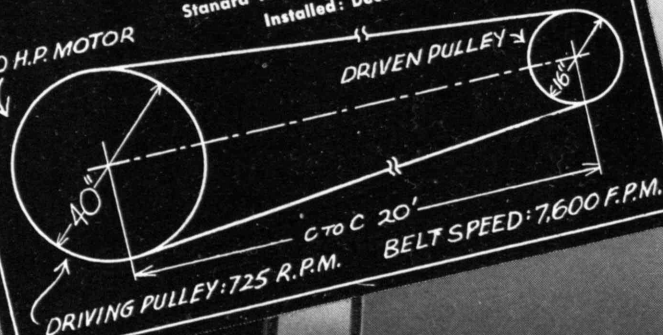
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## Editor

J. RHYNE KILLIAN, JR.

## Business Manager

RALPH T. JOPE

## Editorial Associates

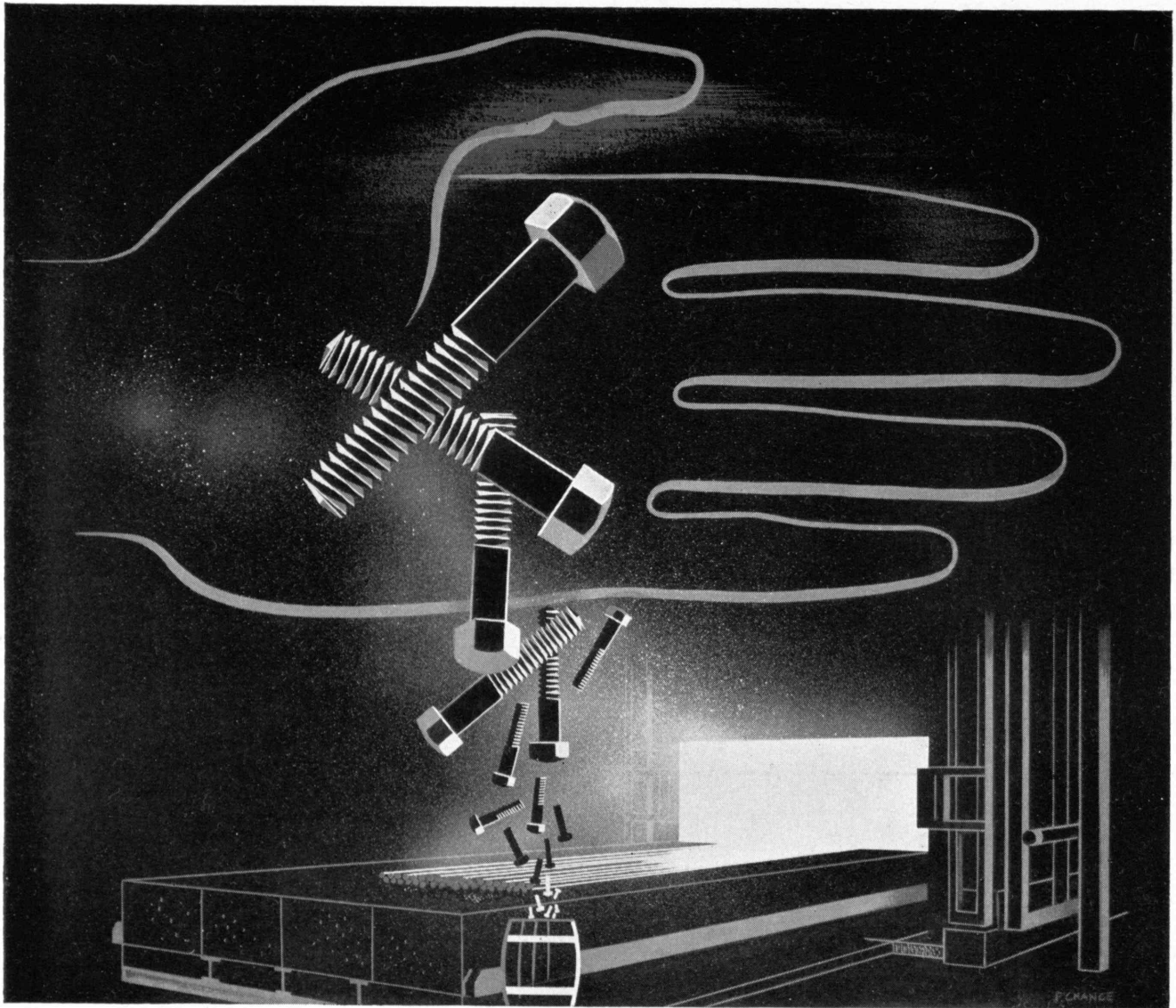
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## Staff

*Editorial:* MARJORIE FULLER, JANE McMASTERS. *Business:* MADELINE McCORMICK, RUTH KING

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# THE TECHNOLOGY REVIEW

Vol. 40, No. 5



March, 1938

## The Trend of Affairs

### *Wetter than Water*

SOAP owes its detergent action to the fact that the long molecules which it contains have, at one end, a group which is soluble in water and, at the other, a group which is soluble in fats and oils. Sodium stearate, the principal ingredient of any hard soap, has the acidic carbonyl group's sodium salt, soluble in water, at one end of its molecule, while the rest of the molecule consists of a long chain of 17 carbon atoms — a grouping which, by itself, has the properties associated with a fairly heavy lubricating oil.

A soap solution brings water and grease into such intimate contact that the grease is emulsified and carried away; this is probably the best explanation, at present, for the detergent action of soap. Soap solutions, however, have another remarkable property: The soap reduces the surface tension of the water in which it is dissolved, thus causing the solution to wet substances more readily and to cling more firmly to their surfaces than does water alone. Hence soap is a wetting agent, as well as a detergent.

For many years chemists have recognized that Turkey-red oil — sulphonated castor oil — must be used if alizarin is to be applied successfully for the dyeing of Turkey red. While it is now certain that the sulphonated castor oil functions as a wetting agent, the matter has not attracted particular attention, although the practice has been regarded as an empirical necessity for good results. Wetting agents are by no means new, but the term is new, as is the term, penetrants, suggesting another use to which the material may be put.

During the past three or four years, wetting agents have become very prominent. Many of them are available commercially; many more have been studied and patented. They are used in laundries, in the dyeing and tanning industries, in the washing of fruit, in medicine

(where they impart an increased efficacy to antiseptic solutions), in tooth paste, in metalworking shops, and wherever it is desired to apply an aqueous solution quickly and completely to the surface of a material. Some wetting agents are detergents, but some are not. The two properties are not necessarily associated, nor can the detergency of soap solutions be explained as due to their wetness.

The properties of a wetting agent may be demonstrated strikingly by a simple experiment: Pieces of sail cloth or wads of cotton, for example, will ordinarily float on water for hours; when thrown onto water which contains a small amount of wetting agent, they sink immediately. A drop of water on a smooth surface of paraffin stands up in the form of an almost spherical globule; the water makes an angle of 115 degrees with the paraffin. If the sodium salt of a fatty acid containing two, four, six, eight, and so on, carbon atoms is dissolved in the water, no considerable change in the angle which the water makes with the paraffin is apparent until acids containing more than eight carbon atoms are used. With an increase beyond eight, the angle decreases rapidly. A hundredth-formal solution of the sodium salt containing 14 carbon atoms makes an angle of only about 15 degrees with the paraffin surface. A hundredth-formal solution of sodium stearate (18 carbon atoms) might be expected to make almost no angle at all and, hence, to spread out on the paraffin surface, wetting it perfectly, but this experiment could not be tried because such a solution of sodium stearate is a jelly at ordinary temperatures.

Several varieties of wetting agents are now available commercially. The sodium alkyl sulphates, in which the alkyl group is either a group like lauryl (12 carbon atoms), which is procurable from natural sources, or a forked chain (perhaps of 17 carbon atoms), which is produced by synthesis, are widely used as wetting agents.



Richter—Oil Well Supply Company

### ROTARY RIG

Equipment used in drilling oil wells. The standing pipes, successfully screwed together, follow the drill as it bores downward. Record depths drilled to date have exceeded 13,000 feet



The same substances find use as hard-water soaps, for the calcium and magnesium salts of the alkyl sulphuric acids, unlike the corresponding salts of the ordinary soap acids, are soluble in water. Other wetting agents are the sodium salts of the sulphonated alkyl naphthalenes. These, like the sodium alkyl sulphates, owe their properties to the electronegative parts of their molecules. Other substances, like the alkylated ammonium and phosphonium salts, derive their power as wetting agents from the electropositive parts of their molecules. There are wetting agents for use in acid, in alkaline, and in neutral solutions.

Proverbially, things absorb water like a sponge and shed water like a duck. We have not heard whether sponges are endowed with their own natural wetting agents, but there is a tale of how science circumvented nature in the matter of the duck. A chemist, wondering concerning the effect of his wetting agents on a duck, put the duck into a tub of water in which a small amount of wetting agent had been dissolved. The poor duck, unable to swim, wallowed about and finally sank, until only its head remained above the water. This was an ignominious and unusual position for a duck to be in. The chemist, being a humanitarian, fearing lest the bird might have suffered a chill, invited the duck to dine with him and his family on the following evening. So it fell out. He was made fully at home and was served with applesauce and Burgundy. Everyone liked the duck, and the duck agreed with everyone. There is no other sequel to this history of the humanist and the wetting agent.

### Figures in Plastics

NO self-respecting whaling skipper ever reached for his *telescope* when his mastheads yelled, "Thar she blows"; he grabbed his *glass*. Nor does even the most miserable of bookworms refer publicly to his glasses as spectacles. He knows, or should know, that the words glass and lens are, to all intents, synonymous and have become so by reason of the unchallenged position which glass maintained for ages as the only commercially practical raw material for the optical industry. Two years ago, the last phrase could have been couched in the present tense, but the ubiquitous science of substitution seems, in this field, to have scored an advance which is saved from being revolutionary by no more than a quarter wavelength of light.

Involved in this not quite definitely established revolution are some of the latest man-made molecules to achieve major industrial importance: the synthetic resins. Like glass, these substances may be regarded as supercooled liquids, are frequently thermoplastic (softening on heating), are — not so frequently — of a clearness and transparency barely equaled by glass, and occasionally surpass the latter in some optical properties. Unlike glass, however, they are all formed and worked at comparatively low temperatures. This blessing is accompanied by a tendency toward lack of certain obdurate virtues characteristic of the furnace product, namely, great resistance to weathering and chemical attack and supreme stability against aging and dimensional changes.



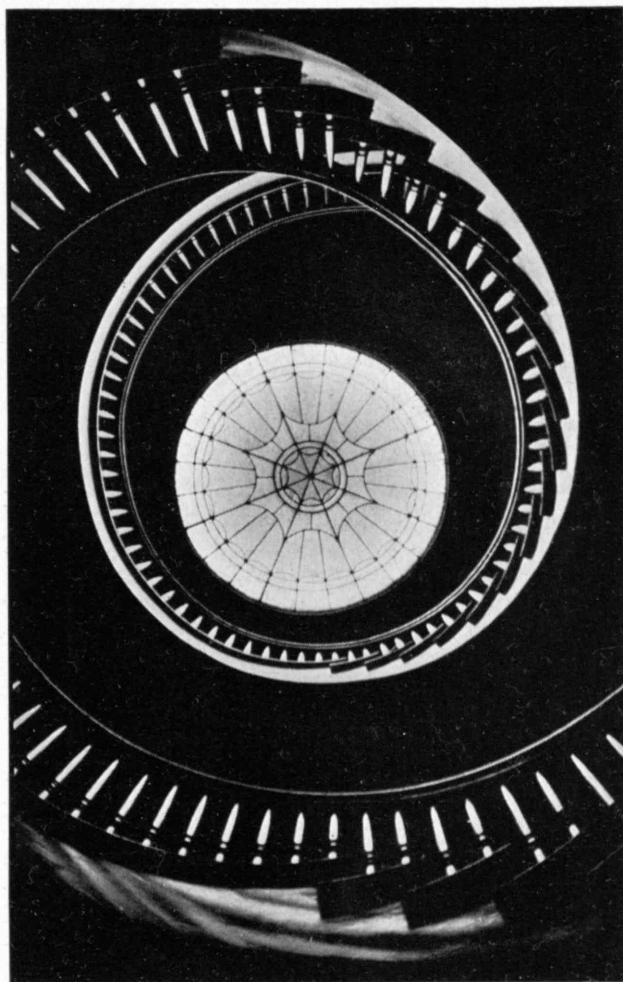
Chief of these products which most deserve to be called organic glasses are the various polymerized blood brothers of acrylic acid, known to the trade as Acryloid, Plexiglass, Lucite, and Perspex. The last substance is a methyl methacrylate recently developed by the Imperial Chemical Industries of England and now being molded by a process developed by Arthur W. Kingston and Peter Koch de Gooreynd (both Englishmen) into lenses claimed to be suitable for spectacles, cameras, opera glasses, binoculars, telescopes, range finders, optical systems for television apparatus, and scientific instruments.

Molding, while certainly far from a new method for shaping glass, is employed in the optical industry mainly in the preliminary forming of spectacle lenses. Grinding has always been the characteristic technique, a process so delicate and painfully slow that it is by tradition a trade for philosophers. To produce finished, polished lenses with one stroke of a ram, therefore, means the elimination of much skilled labor and makes credible the drastic cuts in production costs reported for the method. Molding, furthermore, will produce television mirror drums and other optical systems of complicated shape as easily as the simplest lens — forgetting, of course, about the dies. And, in view of the importance of optical equipment in armaments, the inventors stress the value of the process to countries not equipped with an elaborate optical industry. (The British industry, incidentally, is small.)

A little prying into the optical industry will discover that there are two general classes of lenses produced — spectacle lenses and precision lenses. To the uninitiated, the method of distinguishing between the two seems a trifle absurd; it consists of determining whether or not the lens was polished with felt. Such polishing destroys the figure of the lens, and, for efficient operation, a figure is more vital to a lens than to a chorus girl. This figure is the shape or curvature of the lens surface and for precise work cannot be departed from by more than one-quarter of a wavelength of light, which translates itself into a tolerance of plus or minus one two-hundred-thousandth inch. On a big telescope mirror, that tolerance shrinks almost to zero. To maintain such tolerances with a molded product means the production of molds which are just as accurate, and it is doubtful if a metal surface can take and keep an acceptable optical figure.

If the difficulty in evolving sufficiently accurate molding techniques is not enough to stop the spread of organic plastics into precise optical systems, there remain the problems of nonhomogeneity and dimensional stability.

While the best of the synthetic plastics can transmit up to 95 per cent of the visible light (or as much as optical glass) and up to 85 per cent of the available ultraviolet (or better than any glass), they are guilty of one of the blackest sins in precision optics — their index of refraction varies. The extreme impropriety of such nonhomogeneity is demonstrated by the slow and costly procedure resorted to by makers of optical glass in order to avoid it, and by the failure of the many excellent qualities of quartz to outweigh this same insufferable weakness.



*Chaptn Wallour*

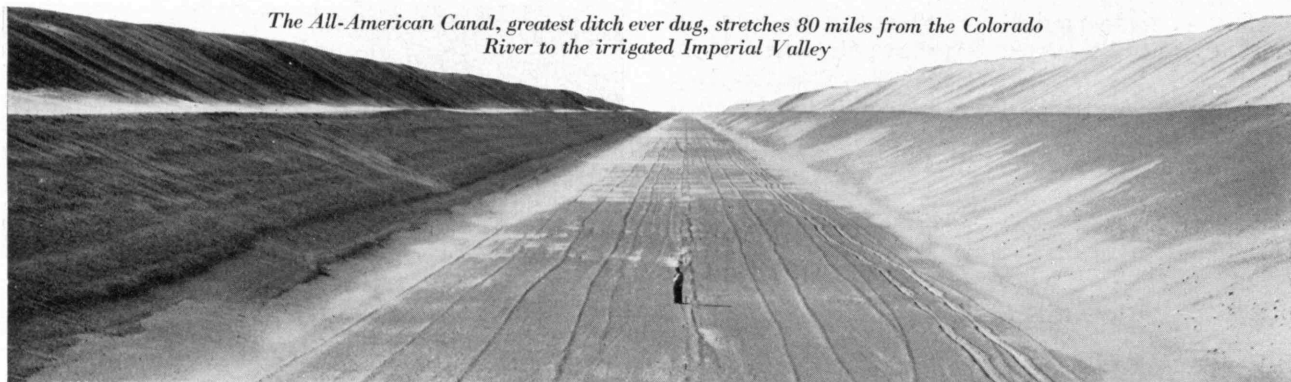
#### ELLIPTICAL HELIX

*High lights on a unique stairway in Springfield, Mass.*

Perhaps a lesser objection is the fact that plastics are plastic. Generally their greatest virtue, in precision optics it becomes a vice. Scientists fear that, over a long period of time, temperature variations, small but long-continued stresses, and possible subtle chemical changes may cause changes in shape beyond the permitted tolerances. Where large masses are concerned, the low heat conductivity and (compared to glass) high coefficient of expansion are not promising properties. On the other hand, the ease with which plastics may be scratched is a minor difficulty, for deterioration from this cause may be avoided by careful handling.

Even if this jaundiced point of view is correct, however, and plastics are to be forever barred from use in high-grade optical instruments, a wide and useful field remains. Completed lenses dropping from the presses at the rate of many thousand an hour certainly promise cheaper spectacles, cameras, and binoculars for popular use. In two fields, at least, the transparent plastics have already achieved dominance. As the non-shattering element in safety glass, their story needs no repeating here. It may be interesting to note, however, that molded airplane windows of cellulose acetate and acrylic resins have permitted streamlining effects otherwise extremely costly.

*The All-American Canal, greatest ditch ever dug, stretches 80 miles from the Colorado River to the irrigated Imperial Valley*



*Pix*

### *The Million-Message Wave*

TRANSMISSION of a million simultaneous telephone conversations, involving two million speakers, not in wire but in the familiar garden variety of downspout that commonly carries rain water from the roof to the ground, is one communication possibility being brought into the range of feasibility through research now under way. Feasibility, however, does not mean immediate application, for that must await the development of proper terminal equipment, particularly generators, modulators, and demodulators.

The communication pipe line is being developed by Dr. Wilmer L. Barrow, '29, of the Department of Electrical Engineering, who is following out some of the ramifications of the discovery of the transmissibility of ultra high-frequency radio waves through hollow conducting pipes. The Bell Telephone Laboratories and Dr. Barrow simultaneously published independent discoveries of this phenomenon in 1936 (see *The Review*, July, 1936, page 415).

The potentialities of this new way of transmitting messages offer interesting comparisons with the capabilities of more conventional methods. A hollow pipe conductor, two inches in diameter, has a potential capacity of transmitting a band of frequencies about ten billion cycles per second wide, and, therefore, of carrying one million simultaneous telephone conversations, each two-way conversation occupying two bands, each five thousand cycles broad, or two thousand television signals, each five million cycles broad. Local telephone wires, by contrast, carry a band only three thousand cycles per second in breadth; present open-wire, long-distance lines carry bands of only thirty thousand cycles per second; and the new New York-Philadelphia coaxial cable uses at present a band of one million cycles per second. Television requires a band of about five million cycles per second. In a copper pipe of two-inch diameter carrying two billion cycles per second, the rate of attenuation, or of decay of signal strength, is about the same as that in the New York-Philadelphia cable at a frequency only one-tenth as great, or two billion cycles

per second. In the table below, the vital statistics of these various means of transmission are presented for ready comparison.

When they are sent through the conducting pipe, the ultra high-frequency waves may, according to one representation, be thought of as traveling in a zigzag course, bouncing from opposite sides of the pipe in sequence. Below what is called the critical frequency, the waves make an angle of 90 degrees with the walls of the pipe and, consequently, have no forward or longitudinal motion. They shoot back and forth across the pipe, perpendicularly to its walls, and the message which they embody does not get ahead. But raise the frequency slightly above this critical value and the angle at which the waves hit the sides of the pipe is decreased; their course, no longer perpendicular to the sides of the pipe, is in a zigzag path along it; the message moves. As the frequency is further increased, the angle of incidence is correspondingly lessened, the wave travels farther on each transverse jump, and the message moves faster.

This picture of the progress of the wave is one derived from Dr. Barrow's investigation of various types of waves in combination with various shapes of pipe, with a view to determining rates of attenuation. Series of different types of waves can be generated in the pipes, depending on the generating system used at the trans-

**BAND WIDTHS OF SEVERAL COMMUNICATION MEANS**

<i>Conducting System and Service</i>	<i>Band Width in cycles per sec.</i>	<i>Number of Simultaneous conversations, or channels</i>
Telegraph, direct open-wire line	100	1
Telephone, open-wire line and cable in local circuits	3,000	1
Telephone, open-wire carrier (present practice)	30,000	4
Telephone, open-wire carrier (projected system)	140,000	16
Telephone, coaxial cable (new New York-Philadelphia link) one coaxial unit	1,000,000	120
Television and telephone, coaxial cable, Germany	5,100,000	1
Television, 343-line picture (1936 experimental radio system)	5,200,000	1
Hollow pipe, two-inch diameter, potential capacity	10,000,000,000	1,000,000 telephone 2,000 television



mitting end. For application to long-distance transmission, the round pipe seems the best; and, if excessively high frequencies are not available, a wave which has been labeled  $H_0$  gives the lowest attenuation in a pipe of given size and cost. Of all the waves and all the pipe shapes tested, another wave, known as  $H_{0,1}$ , in a rectangular pipe, has the lowest critical frequency; also, it is the only one in which the electric lines of force are everywhere parallel to themselves. This last property has an especial value that will appear later.

Ordinary drainpipe, or downspout, came into the picture when Dr. Barrow set out to meet the criticism that hollow-pipe transmission would be difficult when it was necessary to turn corners. Hooking up sections of downspout and using the regulation elbows employed in connections to rain gutters, he has found that the waves will turn corners without trouble. The downspout was useful also in showing that gaps in the conductor can be jumped by the waves. When the sections of downspout were disconnected and their ends were placed an inch apart, the waves went on. As the opening is increased, of course, less power is transmitted.

The combination discussed presents powerful possibilities, but even these can be increased, for if different types of waves are used simultaneously, the range of a million telephone conversations or two thousand television channels may be doubled or tripled. The special property of  $H_{0,1}$  which has been mentioned — the fact that in it the lines of electric force are everywhere parallel—gives to it, however, a peculiar importance. This quality of consistent parallelism means that this wave is properly lined up for radiation as a space wave, and that, if it is shot out of a tube whose end forms a horn, it gives a narrow radio beam, efficiently sharp and free from stray effects. Any undertaking that demands beam transmission of high directivity, then, may make good use of this combination. For applications to navigation on water and in air, in point-to-point radio communication, for direction finding, and perhaps in television, this property of the  $H_{0,1}$  wave is a promising possibility.

### *The Chemistry of Cancer*

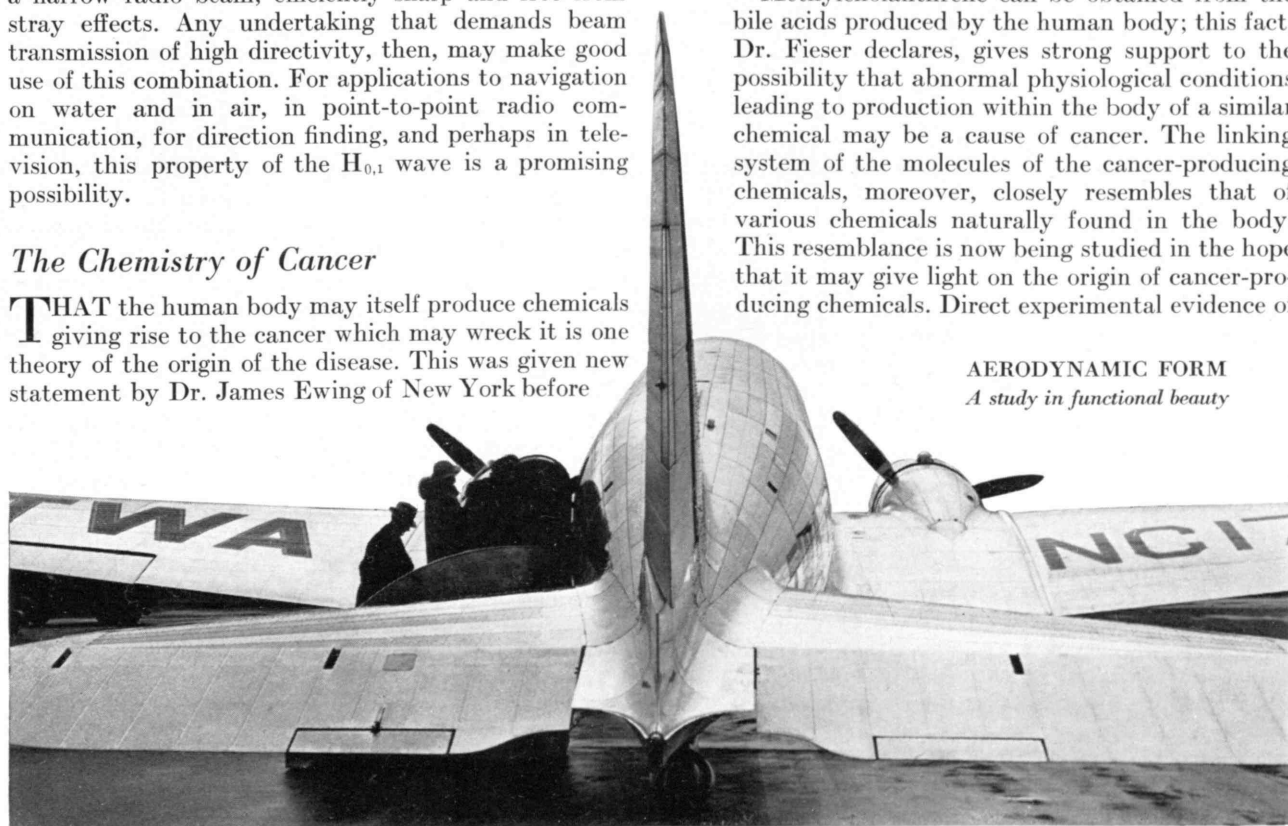
THAT the human body may itself produce chemicals giving rise to the cancer which may wreck it is one theory of the origin of the disease. This was given new statement by Dr. James Ewing of New York before

the recent meeting of the Pan American Medical Association in Havana, with the prediction that "a considerable number of human cancers" will be found to originate through the action of natural chemicals which are produced by the body and which closely resemble coal tars. Normal body secretions, Dr. Ewing said, if they are excessive or are in slightly altered form, may cause the growth of malignant tumors. Secretions akin to the coal tars are the sex hormones, vitamins, and bile acids. Evidence exists, Dr. Ewing declared, to show that hormones are one of the factors leading to some forms of human cancer, especially those forms affecting the sex organs. Such altered or excessive hormones, however, must be aided by other factors, he said, before the cancer arises.

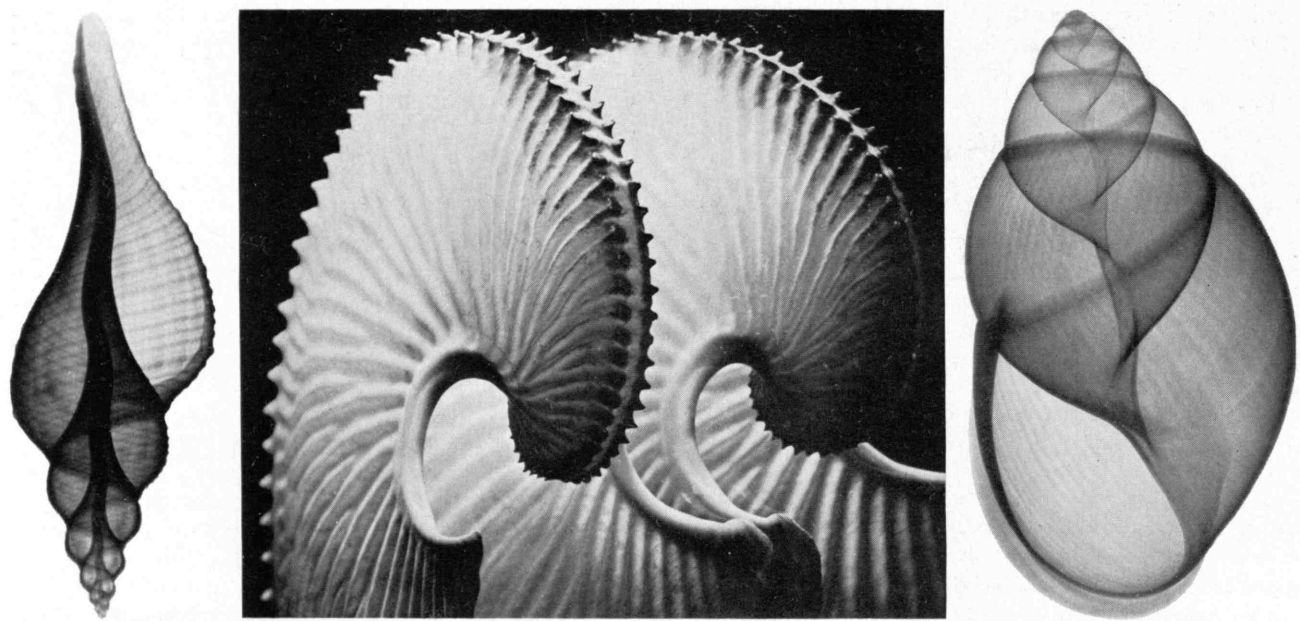
The theory had gained new supporting evidence a few weeks earlier, when Dr. Louis F. Fieser and his associates in the Converse Memorial Laboratory at Harvard made public a progress report on their study of cancer-producing compounds. Through the synthesizing of 68 new chemical compounds, 22 of which are definitely active in producing cancer, Dr. Fieser and his group have given researchers a more specific definition than ever of the structural peculiarities of carcinogenic chemicals. In addition, knowledge of some of the molecular characteristics important in producing growth of cancers is revealed by the study. The 68 new compounds synthesized resemble methylcholanthrene, the complex compound of hydrogen and carbon — very powerful as an agent of cancer — which Dr. Fieser produced synthetically three years ago. The new compounds differ slightly from it in the way in which their molecules are joined.

Methylcholanthrene can be obtained from the bile acids produced by the human body; this fact, Dr. Fieser declares, gives strong support to the possibility that abnormal physiological conditions leading to production within the body of a similar chemical may be a cause of cancer. The linking system of the molecules of the cancer-producing chemicals, moreover, closely resembles that of various chemicals naturally found in the body. This resemblance is now being studied in the hope that it may give light on the origin of cancer-producing chemicals. Direct experimental evidence of

AERODYNAMIC FORM  
*A study in functional beauty*



Korth



NATURAL FORMS

Black Star

Left and right. The x-ray reveals the delicate construction of shells. Center. The exquisite shell of the cuttlefish, the "ship of the Argonauts"

the formation of these chemicals in the body has not yet been possible, so that this circumstantial evidence is the more valuable.

### Light from the Abyss

A GOOD half of this planet's surface is buried under 10,000 feet or more of salt water. More remote in actuality than the face of the moon, the bottom of this vast abyss forms a *terra incognita* with features so unique that even the most desperate efforts of scientific fiction writers have failed to create imagery more grotesque than the facts already known. The abyss is a place of intense silence, of blackness streaked with phosphorescence, and of steady, numbing cold that does not vary a degree throughout the year. Weird forms part these dense waters, sometimes with immense eyes to catch the faintest gleam of a phosphorescent organ, sometimes with no eyes at all, but always with huge maws and elastic stomachs ready for the infrequent meals that interrupt their famine. From the upper reaches, a fine rain of dust and organic debris floats down, but little that is edible passes the gauntlet of finny scavengers. Even those skeletons composed of calcium carbonate are mainly dissolved in the last few miles of fall. No sailor ever reached Davy Jones's locker unless his bones were chromium plated.

Yet deposits accumulate, and over 51,500,000 square miles of the bottom are covered by one type of sediment alone, the famous red clays. Containing such odd substances as the ear bones of whales, the teeth of sharks, and the dust of stars, these substances were first studied by the *Challenger* expedition in the middle Seventies. The three-year voyage of this ship, although perhaps the greatest scientific journey ever attempted, did not explain the origin of these sediments — the most characteristic of the deep sea — nor did it measure the

rate at which they were being laid down. The scientists weighed cosmic dust, classified the ear bones, and counted the sharks' teeth but deduced from their relative abundance merely that the rate of deposition was extremely slow.

Important if for no reason other than their startling magnitudes, the deep-sea deposits gain additional significance from their relation to the history of the ocean basins, the climates of the past, the cycle of life within the sea, and many another fundamental geological riddle. Modern sounders of the abyss have advanced somewhat beyond the technique of Captain Phipps, the first one on record whose curiosity led him, on September 4, 1773, to tie together all the sounding lines aboard his ship, coat his lead with tallow, and bring up from 683 fathoms (4,098 feet) a sample of soft, blue mud. Today's fisher-after-oozes has coring devices at his disposal, such as the "gun" developed by Carnegie Institution's Dr. Charles Piggot, which can bring up a complete cross section of the bottom to a depth of ten feet. To the gratification of scientists, such samples often show definite stratification.

It was in smaller but similar stratified samples, brought up from the depths of the tropical Atlantic by the German research ship, *Meteor*, that W. B. Schott recently found, or thought he found, an important clue to the puzzles of earth science that are tied up with the ocean bottom. Close investigation convinced him that material from all sources was being laid down on the floors of the deep sea at the rate of approximately one centimeter every thousand years. Similar experiments in the Indian Ocean checked this figure.

Unfortunately, calculations based on this datum give absurdly gigantic thicknesses for the total amount of sediment. If one assumes, as does the Dutchman, P. H. Kuenen, that the deep seas have existed for 1,700,000,000 years, Schott's rate gives (Concluded on page 232)



# Putting Germs to Work

## *Harnessing Microbes for Man's Service*

BY SAMUEL C. PRESCOTT

**J**UST about a hundred years ago, in the period between 1830 and 1855, numerous logical and carefully planned experiments were carried out, the results of which led to the conclusion that neither the life-giving influence of oxygen nor those fortuitous combinations of conditions which were earlier conceived to result in spontaneous generation were the cause of the development of those hosts of microbic life which swarmed in the rich food solutions employed, but that their development was the result of antecedent life existing in soil, air, and various materials. At about the same time, previous to 1850, yeast was proved to be a living plant and to be the probable cause rather than the result of the fermentations of beer and wine. It had likewise been made clear that mother of vinegar was a mass of living cells of uncertain classification, which could in some way transform wine into vinegar.

It remained, however, for the experiments of Helmholtz and especially the epoch-making work of Louis Pasteur to explain these phenomena. Pasteur, as a result of his discovery of the chemical change in racemic compounds by the action of fungi and his later magnificent studies on the deteriorations of wine and beer, not only proved that life without air is possible but also clearly established the germ theory of fermentation. This was the antecedent of, and supplied the basic principle on which was founded, the germ theory of disease, which he later elaborated and by which he is universally known. This great principle or discovery is often ranked as the most significant scientific development of the 19th Century. It is interesting to note, in passing, that it was an industrial research that led to this important truth which has been of such immeasurable benefit to human welfare.

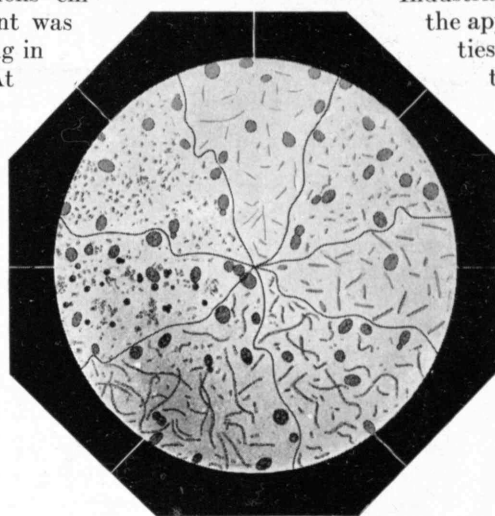
Pasteur's persistent and laborious investigations concerning microorganisms, first in the field of fermentation and later in his investigation of the silkworm disease, not only twice saved France from financial ruin but greatly advanced wine, beer, and other fermentations, and undoubtedly preserved the silk industry of the world. The story of each of these industrial triumphs is a dramatic record of scientific achievement — of logic and vision, of patient research, of indomitable will. From the

study of the silkworm disease came the foundations for the whole structure of preventive medicine, with its use of antitoxins, protective serums, and so on, and much of the basic principle of applied public health as we know it today. From the study of fermentations and the "diseases" of wine and beer developed the facts and theories which in more recent years have led to industrial processes of great interest and value.

Industrial microbiology is concerned with the applications and relations of the activities of yeasts, molds, and bacteria to the production of desired materials or to economic processes. These applications and relations may be of opposing natures, for on the one hand, we seek to control and foster the utilization of microbic energy for the constructive purpose of producing useful and desirable materials as a result of fermentations, while on the other hand, we attempt to control and prevent the development of germs causative of harmful or destructive chemical processes, as, for example, in our methods of food preservation.

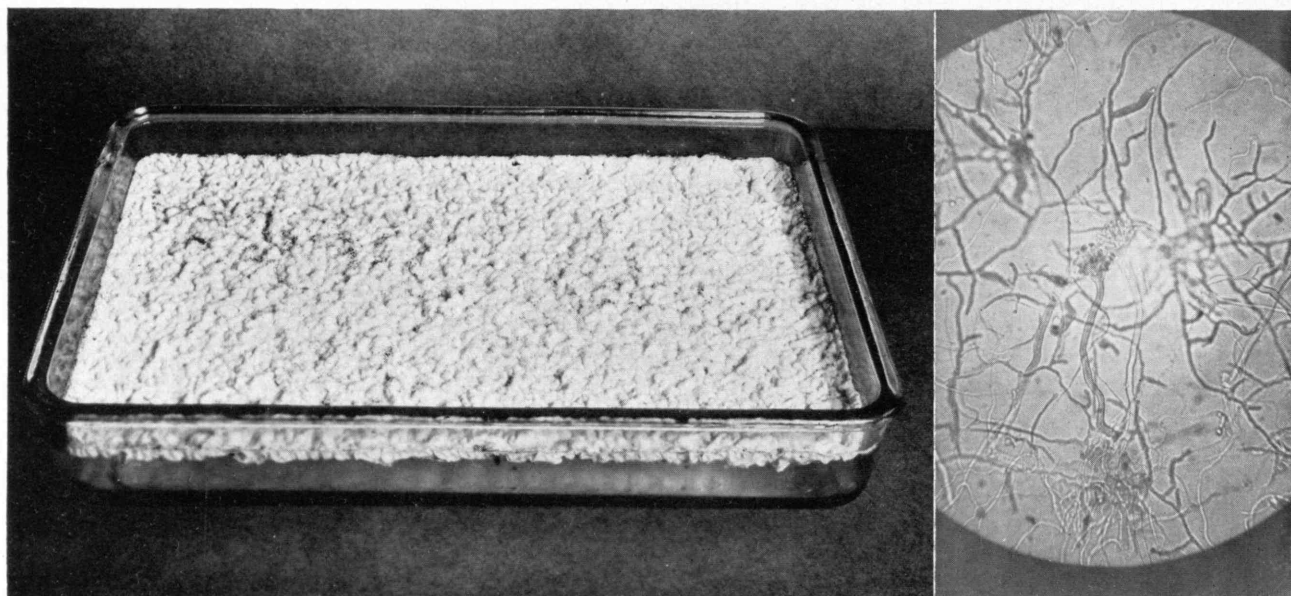
While certain fermentation industries, such as brewing and wine making, have been practiced with comparative success for hundreds or even thousands of years, it is obvious that the fundamental changes involved in these processes were not and

could not be entirely understood. Nevertheless, the alcoholic fermentation produced by yeast not only was, but still remains, the most important fermentation industry. There is, however, a considerable list of other microbic processes which may not be devoid of interest as examples of putting germs to work in a productive manner. Ability to do this centers in three facts: The first is that under suitable conditions of substrate and environment, each type of usable organism produces a specific fermentation, with definite types of chemical changes, just as each type of pathogenic microbe produces its specific, characteristic disease under the same circumstances. The second fact of importance lies in the speed with which microbes can reproduce or develop, when placed under favorable conditions. A single bacterium, for example, which reproduces by the simple process of breaking in two and in which the generation time may be even less than 30 minutes, would, if its growth rate continued unchecked by its own products,



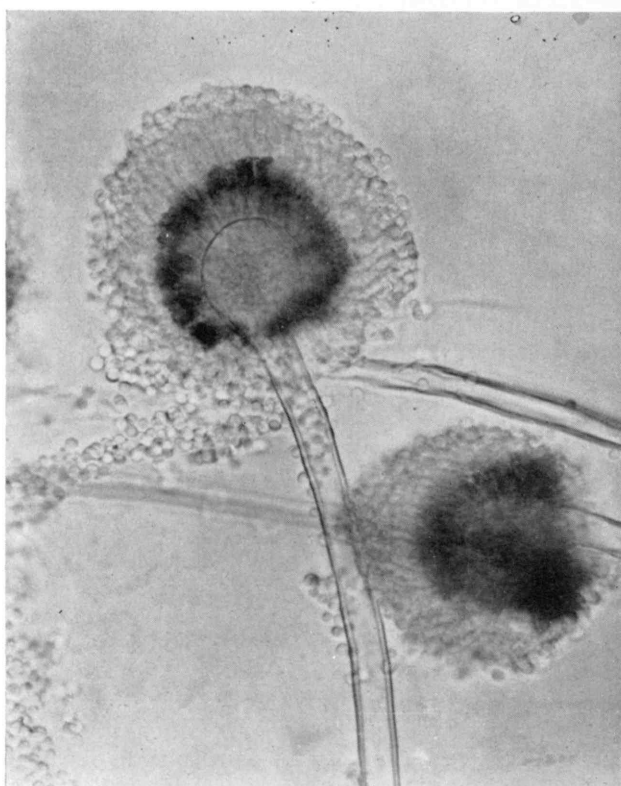
### EPOCH MAKING

*This photomicrograph dates back to Pasteur and shows the types of organisms he isolated in his studies of wine and beer. These studies established the germ theory of fermentation, and this industrial research supplied the basic principle on which was founded the germ theory of disease*



#### A. NIGER: THREE PORTRAITS

Nearly all the commercial citric acid used today in soft drinks, foods such as certain soups, and for technical uses in chemistry is now produced by molds. At the left is one of these molds, *Aspergillus niger*, growing in a shallow dish, and at the right is a magnified picture of the fungus, showing the beginnings of spore formation. Below is *A. niger* in the act of budding (throwing off new spores)



Peter Doelger, '36

multiply in 15 hours to something over a billion organisms, or to about 268 trillion in 24 hours. Incidentally, if the microbe were of ordinary size, such a number would be easily compressed into a cube with an edge of one-quarter inch. A third factor of significance is that the living cell carries on its work without the application of great external energy, such as the use of extremely high temperature, vast consumption of electric current, or

great pressure — factors which are often necessary to bring about the same kind of chemical change by the use of purely chemical methods.

While in most instances one makes use of a single kind of microbe, it is possible that several organisms may be employed, each doing a particular part of the work. Probably future developments in fermentation industries will take advantage of these microbial alliances or successions, as the case may be.

Putting germs to work under factory conditions is, therefore, but an imitation of natural processes, carried out under intensive and controlled conditions. In theory we simply supply the materials and the conditions which observation or experiment teaches us will be of greatest advantage. In practice it is not so easy.

Probably the best known of all the processes utilizing microbes as agents of chemical or biological activity are the industries in which yeasts are the organisms supplying the motive power. It is not always recognized that the yeast, which is present to the extent of some eight billion living cells or plants in an ordinary yeast cake, is but one of many scores of species of microorganisms with wide distribution in nature.

Of the many which are now known, one genus of yeasts, the *Saccharomyces*, with a few species, has been of great industrial importance for untold years. It includes the organisms responsible for the production of our usual forms of bread, for the preparation of beer and ale, for the fermentation of cider and wines, and for the fermentation which precedes distillation in the manufacture of industrial alcohol and in the production of strong liquors, such as whisky and rum. These processes have been known so long that it is not necessary to explain them in detail. It may be of interest, however, to mention that the type of yeast which is employed in making beer is slightly different from that used for ale, and that a distillery yeast or a bakery yeast is also a



specially cultivated strain. In early days the fermentations were all spontaneous or brought about without reference to purity of culture, by the simple expedient of carrying over a little of the deposit from a fermenting mass into the next batch of material to be fermented. With wines the situation is somewhat different, for the grapes used have their own special types of yeast, which live on their surfaces, waiting only for the grapes to be crushed in order to begin their action on the sugary juice inclosed.

Since the days of the work of Pasteur, it has been known that such fermentations might go awry because of the contamination with undesirable species. About 60 years ago a Dane named Hansen developed a new technique for the cultivation of brewery yeast by isolating a single individual cell and causing that to grow in a sterilized medium until the requisite quantity needed for a particular purpose had been produced. This is commonly done in many Continental European breweries and in a few places in America. The procedure cannot be exactly followed with wines since the fruit juices are changed in taste and quality by heat sterilization, but the general result can be accomplished by growing a culture of the desired yeast and adding that to the juice at the beginning of the fermentation process, thereby greatly outnumbering the questionable or undesirable organisms which might naturally be present on the fruit. The competition is thus rendered unequal and greatly in favor of the desired types.

There are many instances in which the alcoholic fermentation is carried out solely for the production of industrial alcohol of high purity and not for beverage purposes. Here again yeast is of great importance, and certain types of yeast have been developed which are particularly effective, for yeast can, to some degree, be "trained" by specialized cultivation. Moreover, since there are many substances in nature which can yield sugar by either microbic or chemical treatment, our raw materials are not confined to fruit juices, molasses, or malt extracts, but may include wood fiber, sawdust, or even hay or straw as potential sources. The use of any particular material is largely a matter of economics of treatment as well as of microbic adaptability.

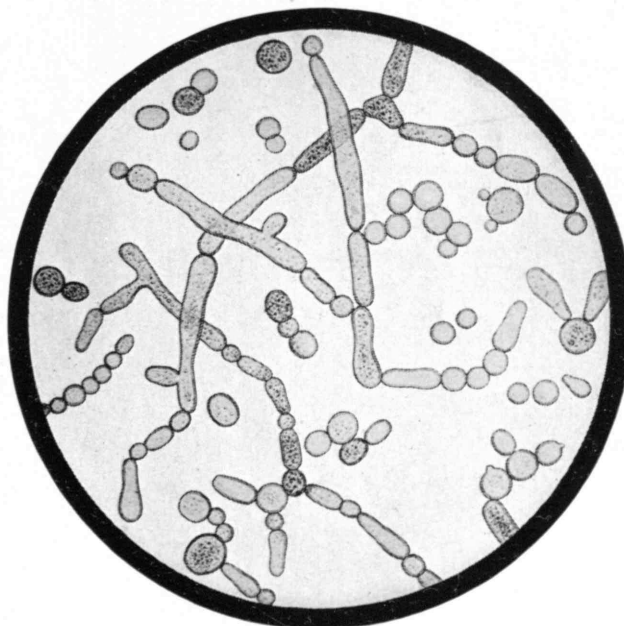
There are, however, many interesting things about yeast, other than its ability to ferment sugars. It is in itself so rich in food materials and accessory substances or vitamins that it is grown and used in great quantity for feeding purposes. All have doubtless read (and doubted) the advertisements for Vitamin D milk. The claims are often extreme but are not entirely false. Yeast grown on suitable culture media has the power to synthesize Vitamin D, and cows fed on special rations in which yeast is an important component thus ingest and later transfer to their milk some of this important vitamin, the special function of which is to prevent rickets, a disease that develops when the sunlight is not rich enough in the actinic rays which produce the vitamin in green grass or in the animal body exposed to sunlight directly. Here it should also be mentioned that yeast cultures constitute the principal source of supply of the commercial Vitamin D now used quite extensively.

A few years ago it was observed that actively growing yeast and fungi can also store in their cells and deposit

between their cells small masses of fat. Under ordinary conditions this might have no special significance, but it became of great significance in Germany when, during the War, she was cut off from the usual sources of fats and oils, and her own fat-producing animals were decimated, as they had to be killed off for food purposes for the soldiers and the civil population. No figures are obtainable, but I have firsthand information from German bacteriologists that the quantity of fat produced in this way was considerable, and that after extracting it the yeast was then used for animal food in large quantities. Pure yeast can also be used as the source of foods, corresponding to beef extracts for soups and broths, by digesting it with pepsin and then concentrating the digested mass to the consistency of paste. A number of such products are made, but they are not of much commercial significance at the present time. Nevertheless, all these processes have greatly increased yeast production as a business.

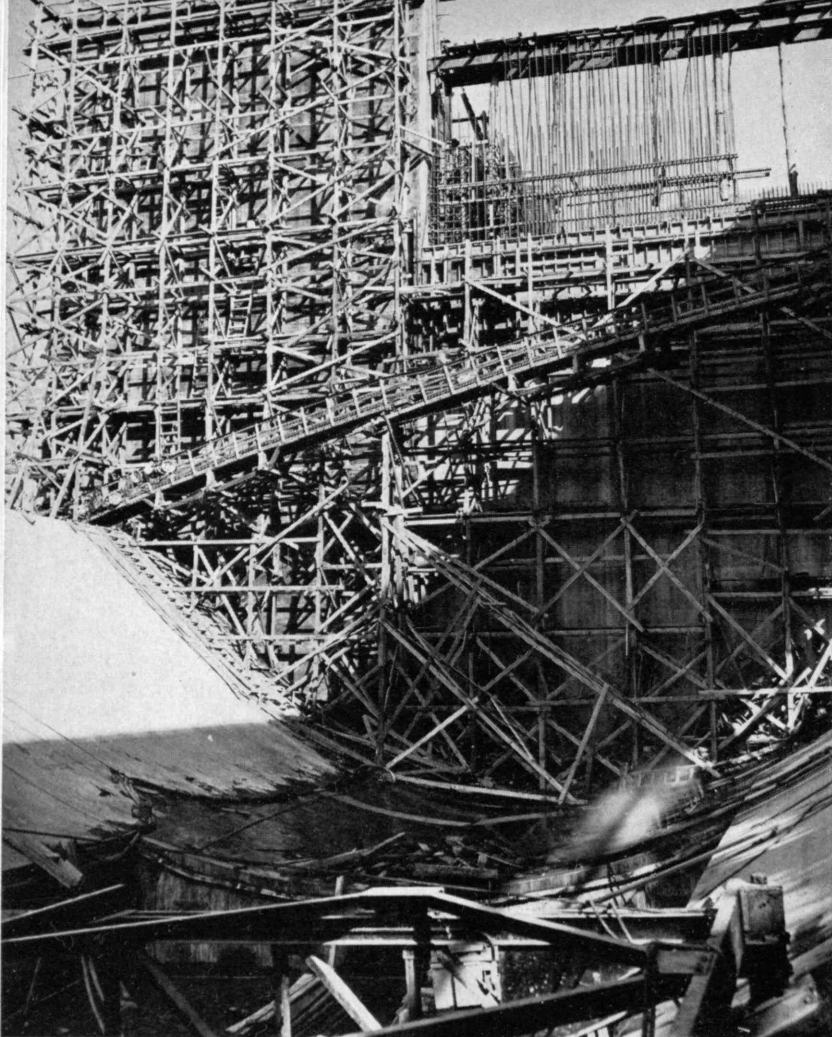
For a number of years, yeast has been used as a food material for cattle and other domestic animals under the name of fodder yeast. Recently the production of one of these cattle foods has been accomplished by the activity of a budding, yeastlike fungus, *Torula utilis*, which will grow rapidly in solutions of wood sugar to which mineral salts or malt germ has been added to supply the necessary nitrogen, with the result that yeast amounting to 40 per cent of the weight of sugar fermented can be obtained.

When Pasteur carried out his painstaking studies on wine and beer, about the time of our Civil War, he made the discovery that in addition to the change from sugar to alcohol and carbon dioxide which yeast brings about, there were small quantities of other products which he was able to detect by most careful analysis. One of these was succinic acid; another was glycerin. This observation, later confirmed by others, (Continued on page 234)

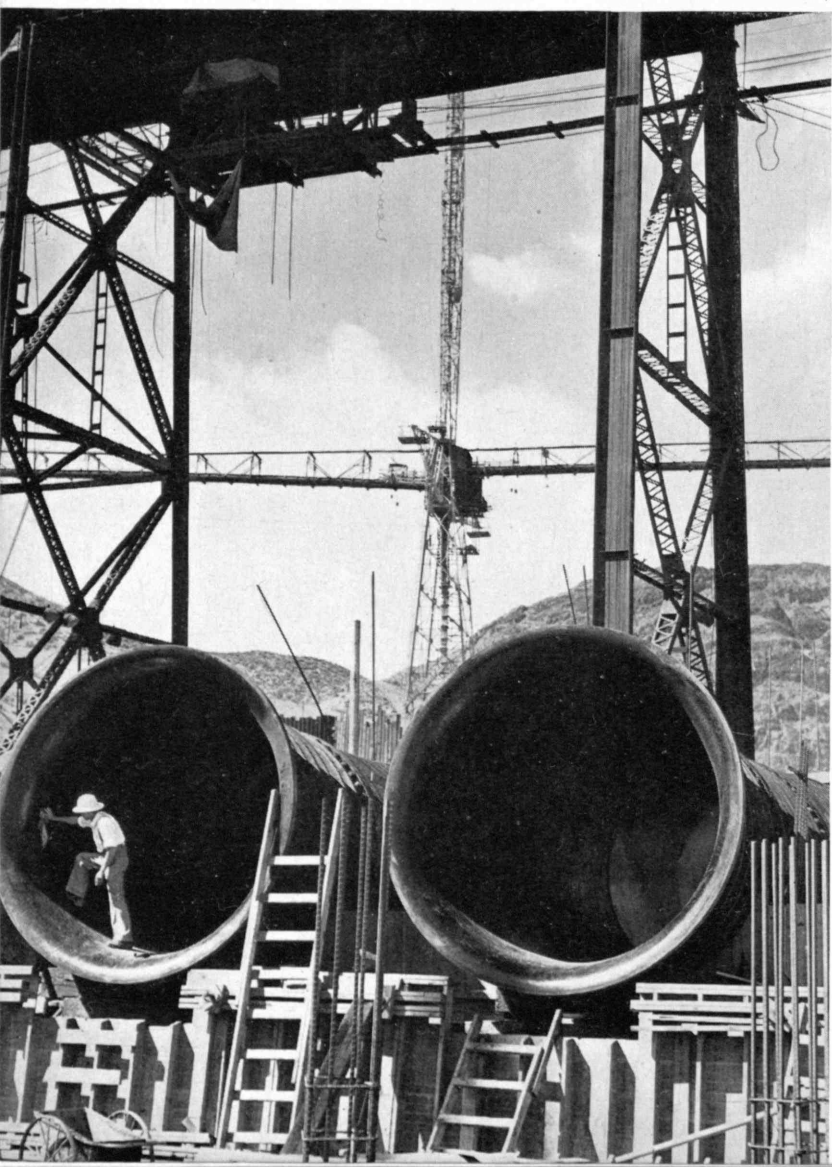


#### PRODUCING ALCOHOL

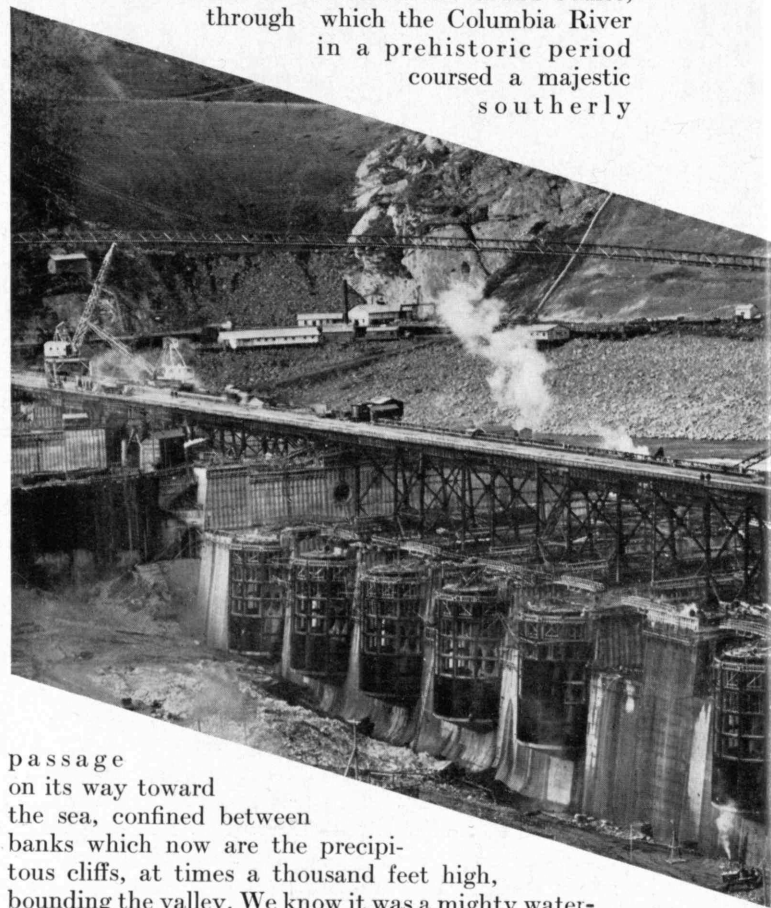
*Fungus (mold) growing in a limited supply of air, showing its method of budding for forming new cells*



U.S. Bureau of Reclamation Photos



GO west 90 miles from Spokane, metropolis of a self-styled Inland Empire which claims all the eastern half of the state of Washington, and you will stand on the floor of an immense, dry, flat-bottomed valley which is 52 miles long and from one and a half to five miles wide. This is the Grand Coulee, through which the Columbia River in a prehistoric period coursed a majestic southerly



passage on its way toward the sea, confined between banks which now are the precipitous cliffs, at times a thousand feet high, bounding the valley. We know it was a mighty waterway, for near the lower end of the valley are what we call the Dry Falls, the remains of a cataract greater than any other. There the three-mile width of the Columbia poured over a 400-foot escarpment, in a waterfall five times as broad and two and a half times as high as the Niagara of our day.

Theory has it that the Grand Coulee was an unnatural channel, cut by the river itself when its normal gorge was blocked during the last great Ice Age; that, when the ice sheet receded, the river reverted to its original bed where it has since remained. This explains why the arid shelf of the Upper Coulee cuts off abruptly where it intersects the south wall of the present valley of the Columbia. The edge at this junction hangs 500 feet





# Hail Columbia!

## *Grand Coulee Enters the Final Phase*

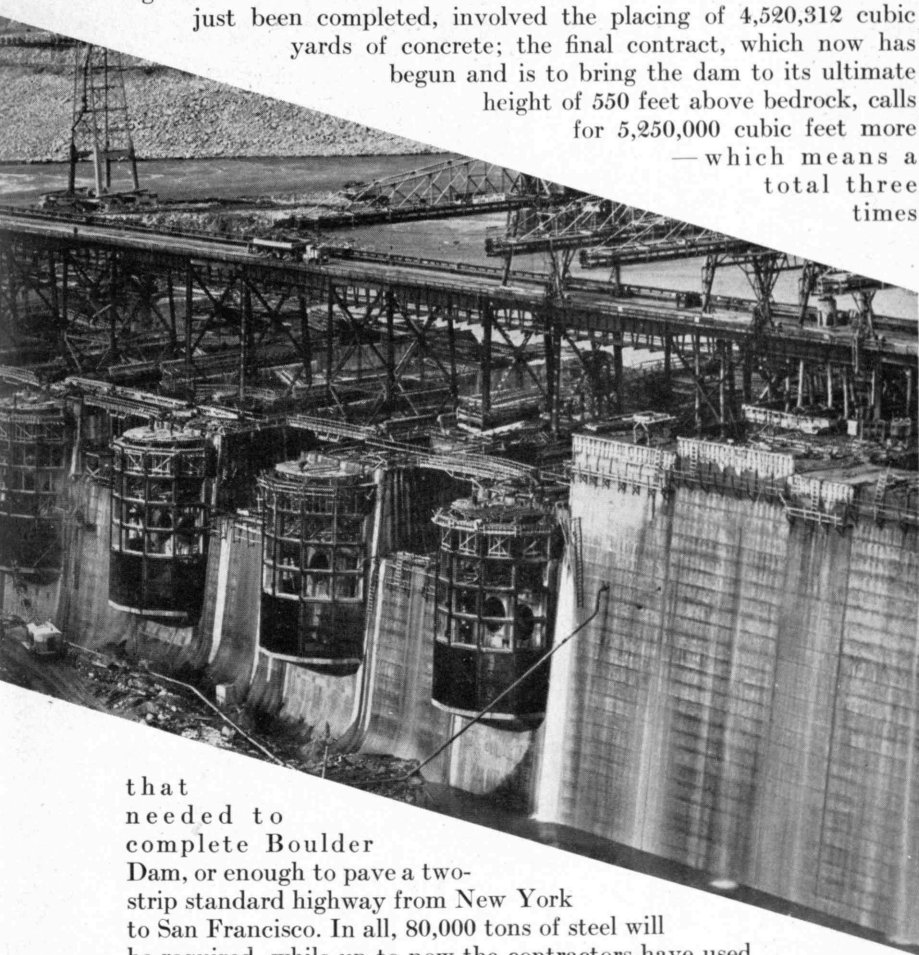
above the present surface of the water, and during the past five years it has been a vantage point from which to observe the activities of an army of workers often numbering as many as six thousand. By the use of steel and concrete they are building a barrier to replace the prehistoric one of ice which melted away, and when they are done waters from the Columbia will again pass through the Grand Coulee. That is why they have selected Grand Coulee for the name of the *permanent* dam.

Behind all this effort stands as a main purpose provision for irrigation of some 1,200,000 acres of southeastern Washington, an area almost as large as that of Delaware. But the dam will also serve to regulate the flow of the Columbia and to develop electric energy to be used in pumping for irrigation and for other needs, while still further considerations involved are those of flood control and the improvement of navigation.

This is the most costly and elaborate engineering project ever undertaken by man, and the final bill will run twenty-five million dollars higher than that of the Panama Canal. The first contract, which has just been completed, involved the placing of 4,520,312 cubic

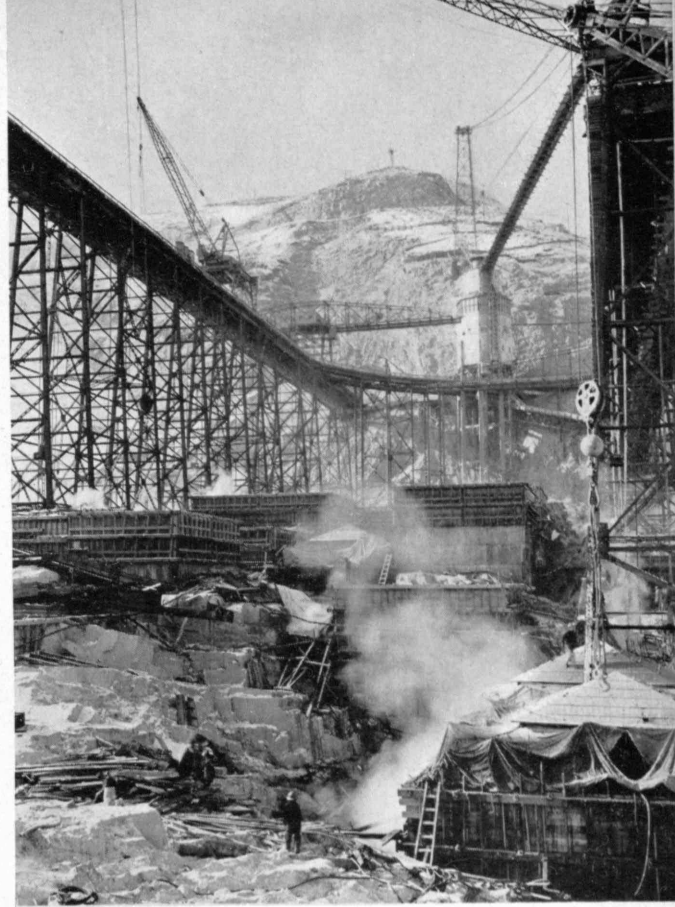
yards of concrete; the final contract, which now has begun and is to bring the dam to its ultimate height of 550 feet above bedrock, calls for 5,250,000 cubic feet more

— which means a  
total three  
times

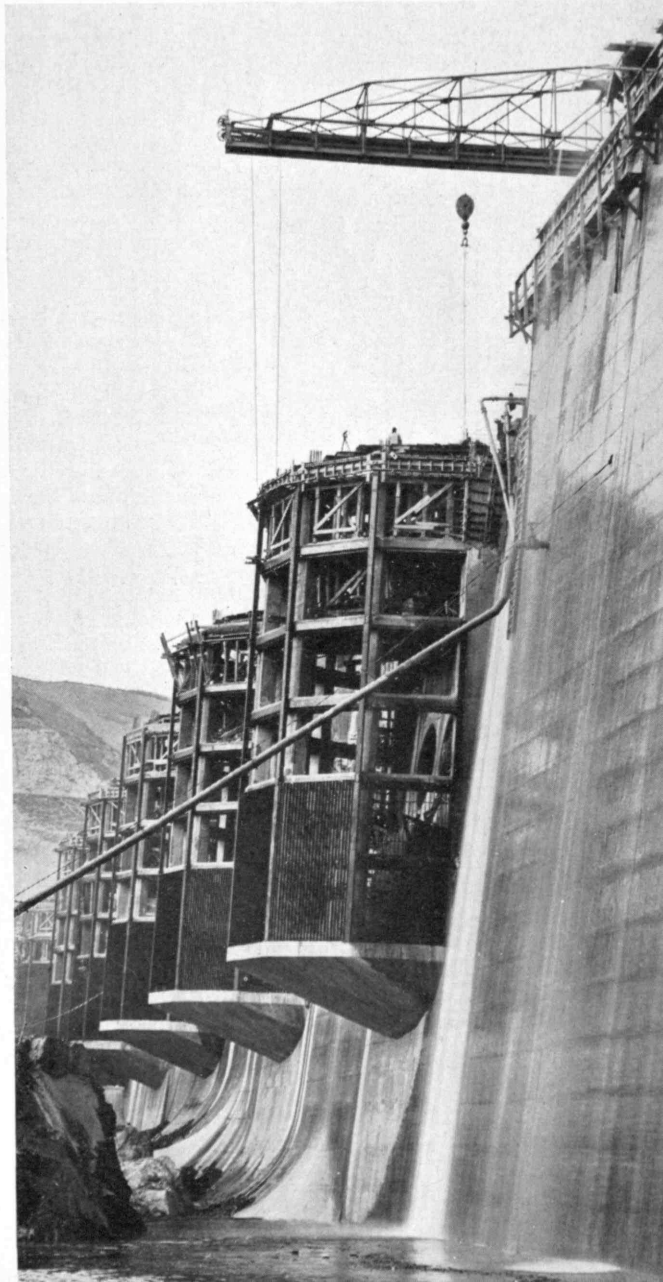


that  
needed to  
complete Boulder  
Dam, or enough to pave a two-  
strip standard highway from New York  
to San Francisco. In all, 80,000 tons of steel will  
be required, while up to now the contractors have used  
75,000,000 board feet of lumber for forms and other purposes.  
Grand Coulee's ultimate horsepower will be half again more than Boul-  
der Dam's and almost four times that of the Russian Dnepropetrovsk.

Behind the massive 550-foot wall, which is to have a crest length of  
4,300 feet, there will be impounded a reservoir, 151 miles long, which will  
hold sufficient water to supply the equivalent of a good-sized swimming  
pool to every *third* man, woman, and child in the United States. Ordin-  
arily, the water in this storage reservoir will be about 350 feet above the  
river level, and pumps will raise it about 280 feet more to a balancing  
reservoir which is to be formed by two auxiliary dams, 23 miles apart,  
laid across the Grand Coulee itself. From this balancing reservoir,  
which will have a maximum capacity of over one million acre-feet, water  
will flow by gravity to the fortunate lands it is destined to bless.



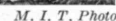
U.S. Bureau of Reclamation Photos



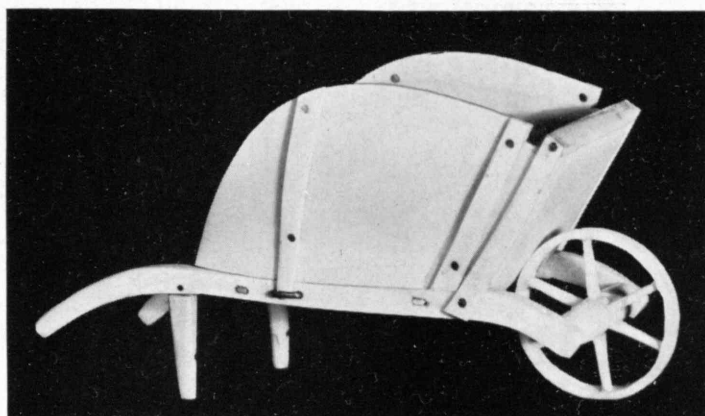
So being, then we must (perhaps to spite  
Our impotence?) set up an answer, pay  
It reverence, see it as whole and final —  
So hush the doubt and free the soul for life  
In here and now — until forth springs the question  
New-guised again to fret us.

And these calm stones,  
Those furious hopes, are nothing in themselves;  
How far soever sundered, they are one  
In meaning: Slag upon a seething surge.  
The surge alone imports.

FREDERICK G. FASSETT, JR.







WHALE "IVORY"  
WHEELBARROW  
*Out of lovesickness or loneliness . . .*

Technology Photos

# Scrimshaw—The Perfect Hobby

*Whalemen Found It a Triumphant Answer to an Acute Problem*

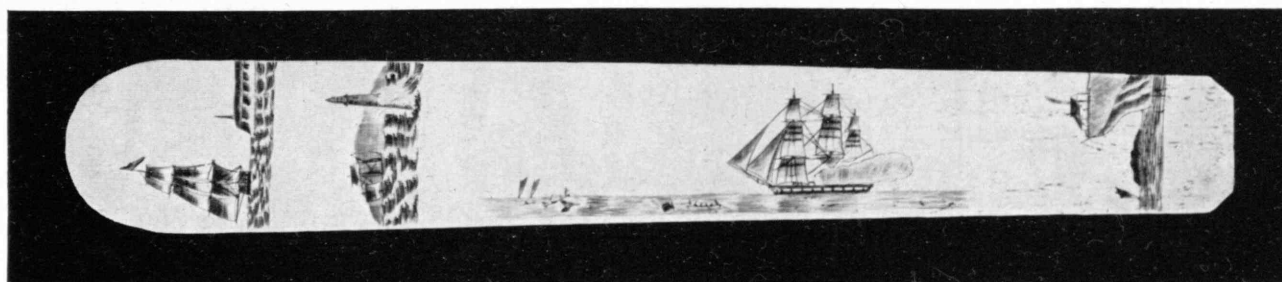
BY ARTHUR C. WATSON

THE splendid loan exhibit of the Henry P. Kendall whaling collection, now to be seen in M.I.T.'s Nautical Museum, has many phases. Perhaps the most interesting and unusual is that of the scrimshaw — the trinkets made by the whalemen out of whale ivory, jawbone, and whalebone. No story of leisure, of hobbies, or of folk art would be complete without its chapter on scrimshaw, for this artistic effort was begot by the most soul-shattering monotony known to industrial pursuits; it was a triumphant answer to an acute problem. Hence, scrimshaw is of particular interest at the present time when so much is being said and written about the problem of man's leisure.

Though the significance of scrimshaw becomes apparent only when we look into the fore-castle of the old-time whaler and note the routine of life, yet the outward aspects of American whaling may serve as a frame for that picture. The industry swept onward with meteoric grandeur from the close of the War of 1812 to the Civil War and the coming of petroleum. When the industry was at its height, more than seven hundred whaleships were sailing from the ports of southeastern New England, outnumbering those from all the rest of the

world. The annual value of the catch was averaging over ten million dollars. The whale was furnishing the world's supply of illuminating and of lubricating oil. The New Bedford shipowners built themselves palaces of dressed granite with Grecian colonnades. The circle of the oceans was their horizon. Their courageous captains were exploring the uncharted seas of Polynesia, penetrating the Okhotsk and the Arctic, often venturing where no sail had ever been before. Their ships would bring them back the oil — the wealth — and also many marvelous mementos of conquest — the giant tortoise from the Galápagos, the night-blooming cereus from Honolulu, the war club from the Marquesas.

The glories of whaling during the 1840's and the 1850's depended not only upon the enterprise of the owner and the courage of the captain; there was the all-important man power, the vast tribe of the fore-castle. This power was recruited in a manner that would seem almost incredible to a modern personnel director. Only a few shipped with their eyes open, and these were youths with fair promise of a career. The rest came from the back-country farms, lured by deceitful broadsides, or from the spider webs of the New York shipping



SCRIMSHAW VERSION OF THE BODICE STAY OR BUSK

*"This bone once in a sperm whale's jaw did rest  
Now 'tis intended for a woman's brest.*

*This, my love, I do intend  
For you to wear and not to lend."*

SENTIMENT . . . SKILL . . .  
PATIENCE . . . PRIDE

. . . went into the whaleman's scrimshaw; sentiment, for example, as engraved on the adjacent tooth (not to mention the busk on the preceding page), skill as exemplified by the two jaggings wheels (for crimping the edges of pies), patience by the intricacy of the handsome swift on the opposite page, and pride in a dangerous profession by the remarkable cane on page 224.

These pieces of scrimshaw are but a few of those in the Henry P. Kendall whaling collection at M.I.T., opened to the public last December as a part of the Nautical Museum



agents — the so-called land sharks — or from jails whence they were bailed by the outfitters. To these were added negroes, mulattoes, Portuguese from the Azores and the Cape Verdes. In one respect, this promiscuity was inevitable. During the great upswing, the industry had outstripped its means; the fast-increasing number of ships launched and purchased for whaling and the equally fast-growing crafts such as boatbuilding, ropemaking, and rigging were draining the population of the ports; it was impossible to continue the days when all-Yankee crews were easily obtained.

And while the boom was affecting the personnel of the forecabin, it had its influence also in the cabin. Even New England, nurse of all that is the best in the maritime character, could not produce, sufficiently fast, men of that peculiar combination of qualities that reigns well on the quarter-deck. While some captains who were "fathers to their men" still existed, the general efficiency tended to decrease. But that made little difference. Give the ship her quota of the best boats that human craft could build, give her the finest of cordage, give her discipline of iron — and the oil would come home.

The system, then, was opposed to a healthy harmony aboard ship. So was the nature of the cruises. A whaling voyage, particularly one around the Horn, generally lasted at least three years. This long period was split into passages, visits to various ports for supplies, and cruises. The cruise was the period spent on some whaling ground. Cruises varied somewhat in their character. There were grounds on which life was very exciting, like the bowhead regions of the North Pacific, especially in the early years of the fishery there, when boats were lowered almost every day, and the brisk air and the good luck thrilled the whalemen. But the typical cruise, like one on a much-used sperm-whaling ground of the temperate Pacific, was the breeder of bad blood. Six or eight months of idly zigzagging about, with the lookout at masthead drowsing, and the men and officers on deck fretting.

The ebbing spirit of the long cruise has often been described in whaling literature, but no better indications can be found than those thoroughly spontaneous thoughts confided to the seamen's own journals. I have collected many such excerpts and arrange a few here:

See cock petrel — a sign of sperm whales. . . .

Misfortunes comes from Heaven  
And why should we complain  
For we have done our best endeavour  
A cargo to obtain. . . .

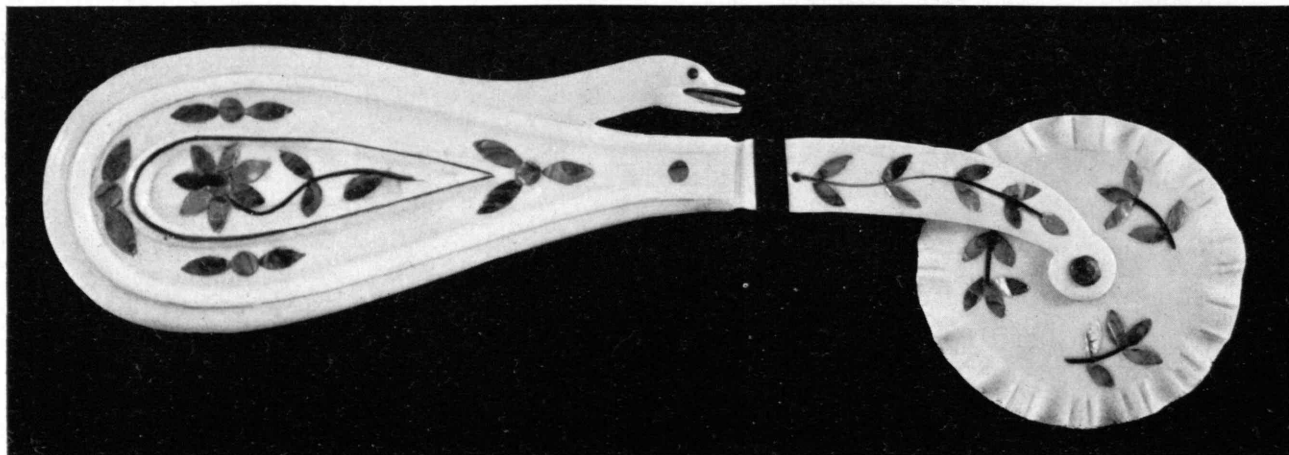
Right phase of the moon for whales. . . .

We are sailing,  
We ain't whaling. . . .

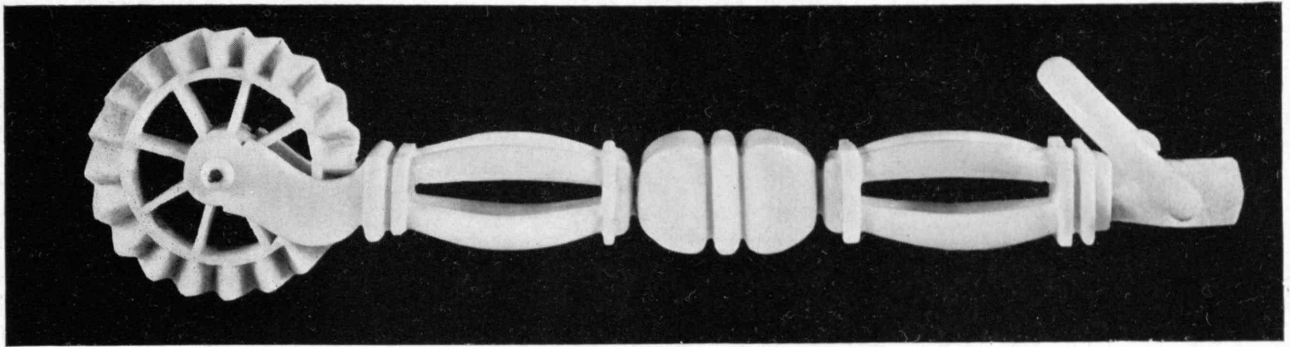
The mast-heads are all asleep. . . . See finbacks — a sign of sperm whales. . . . Reading old letters to find something new. . . . Nothing to do but look at each other. . . .

o lord look down upon us hear  
and touch our hearts with humble fear  
from vain desirs o set us free  
and give us peas and unitey . . .

Nothing to do but build air castles. . . . No whales . . .  
The people at home don't pray. . . . Plenty of rats aboard,







cockroaches and bed-bugs. . . . At dinner-time not much to do but eat. . . . Talking is out of fashion. . . . Cook says there was a row in the cabin. . . .

A whale at last . . . Cut in . . . Tried out . . . But nobody around to see the smoke. . . .

And now the whales have all left the ground. . . . Dry times . . . Dry times. . . .

Dull prospects all around us,  
Large families behind. . . .

About as cheerless as standing on the Fairhaven bridge on a cold winter's night, waiting for some one to lose his pocket-book so that you can find it and get a reward. . . .

Ugly faces aft this morning. . . . Made little whales out of wood and threw them overboard to attract the whales. . . . See bull dolphin — a sure sign of whales. . . . See a large snake on the water, supposed to be a sea serpent. . . . Catch a shark, pull out his insides, heart and all, to see how long he'll keep flipping. . . .

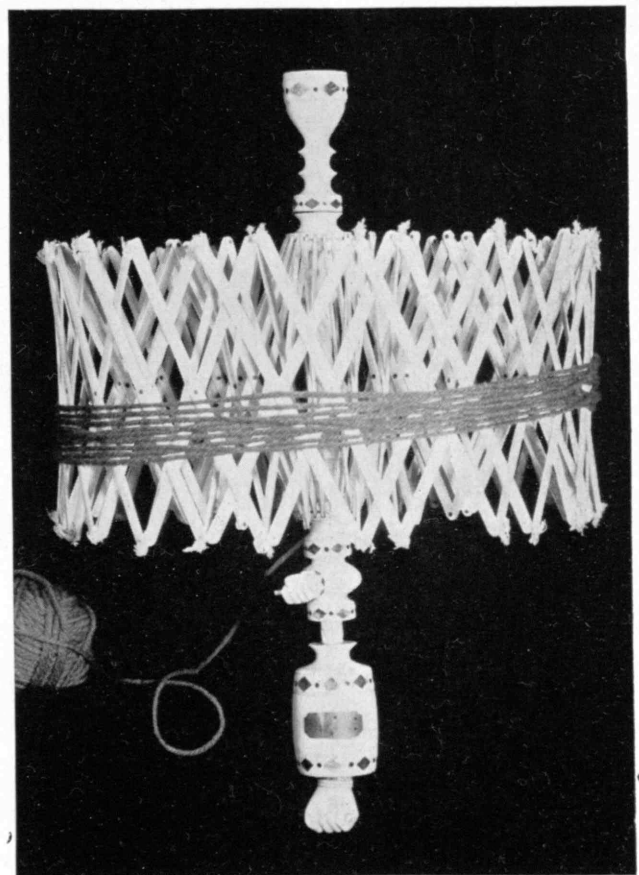
Writing letters home. . . . Dear Friends Parents I should like to Pass the day with You to day but it is not so for me to do I should like To hear from you all as I have not since i sailed O Hannah P Ingalls if you and all the rest of you new how I longed to se you I think you would rite a line To A Poor disconsolate chap. . . .

Just as the tiny sea life on the surface of the ocean rots in a calm, so human life rotted on the long, dry cruise. "Just think of it," writes one seaman, "to be penned up and tossed about on the wide ocean for I suppose the space of three years . . . then see if you can think strange that sailors live fast what little time they stay on shore."

The whale chase itself — and the anticipation of it — was one relief from monotony. Though the chase was the most perilous of all hunts, men who had been ill would leap enthusiastically from their berths at the sound of "Thar Blows!" The catching of a whale meant money and success for the voyage, it is true; but there was a joy in it, too, that is hard to explain. When green hands went on to a whale for the first time, they were apt to be terrorized, even jumping from the boat at a glimpse of the animal. For this reason, green hands were ordered never to turn their heads as they were rowing in the chase, and men have been struck severely by their mate for disobedience. Yet the experienced whaler was without fear, and it is possible that the shabbiness of his routine had much to do with it. Now his only other escape from the ills of monotony

was invented for the whaler by himself. This escape was his scrimshaw, the perfect hobby, into which went his sentiment, his skill, his patience, and his pride. The term "scrimshaw" includes any article, made by the handicraft of a seaman, in which some material from the whale is used. The material might be the tooth of the sperm whale, or the jawbone of the same animal, or the whalebone of some other species. The last-named (as those who are acquainted with the whale know) is a sort of cartilaginous material, occurring in long and narrow slabs which droop from the upper jaw like a comb and which are used as a strainer during the feeding process. Along with the tooth, the jawbone, or the whalebone, the artist might use some tropical wood, mother-of-pearl, tortoise shell, or coconut shell.

Articles of scrimshaw covered a wide range. First were the engravings — on polished teeth, on slabs of bone or whalebone. And then there were the carvings,



generally out of the ivory. These included jaggig wheels for crimping the edges of pies, cane handles, handles for coconut-shell dippers, and any number of objects of individual fancy. There were round baskets made of steamed bone, boxes with elaborate inlay, collapsible swifts or yarn reels, toys, knitting needles, rolling pins, spool racks, and candlesticks. I have seen a parrot cage with the bars of bone, and a clock-case supported by figurines in whale ivory. Scrimshaw broadens out to include many objects of utility made by the whalers for use aboard ship, such as the fids, the blocks, and the serving mallets of bone. And I think even the artificial leg made out of a sperm whale's jaw for Captain Ahab of "Moby Dick" must be classified as scrimshaw.

From the foregoing list it becomes apparent that scrimshaw was, to a large extent, an outlet for the lovesickness and loneliness of many a seaman. By far the greater number of the trinkets must have been made with some wife or sweetheart — some "Hannah P. Ingalls" — in mind. On the busks or bodice stays made by the seamen out of whalebone or of jawbone are often found emblems of love engraved and an occasional verse like the following:

This bone once in a sperm whale's jaw did rest  
Now 'tis intended for a woman's breast.  
This, my love, I do intend,  
For you to wear and not to lend.

From the old journals of the confidential type, one can often reconstruct a romance and sense the spirit in which many of the scrimshawed articles were created. The inner life of many a journal writer seems to have revolved about the letters from home. His entries would be jubilant when a ship was encountered bearing the world's most precious documents, and they would grow mournful and worried as long months passed without sight of sail. Romances moved very slowly in those days, and faiths were kept over the years of absence. Married couples took their separation in a matter-of-fact way. One captain, who was about to leave on a short North Atlantic voyage, was reminded by his mate that he had forgotten to kiss his wife. "Oh, I hadn't forgotten," he replied, "but we're only going to be gone ten months." The words "speed" and "machine age" were unknown. There is the story of the wife who wrote to her husband at sea, asking the whereabouts of the household hammer. Ten months later the answer came from the Pacific that the hammer must have dropped behind the grindstone in the shed. And five months later a letter arrived in the Pacific with the words, "I didn't mean the hammer. That was stupid of me. But where did you put the axe?"

It was the slowness of life, the mental lassitude of the long cruise that furnished the temper needed for lingering, painstaking work. The



sperm-whale's tooth, the "ivory" — true and beautiful material — was friendly only to the most patient workman and made the most highly prized scrimshaw. The tooth, in its natural state, was smooth only at the tip; below, where it had been covered by the gum, it was roughly ribbed. The whaler, in preparing a tooth for engraving, first used a coarse, handmade file to scrape off the ribs; then, a finer file to work it down, while the bands of the ivory colors began to appear and disappear; then, sandpaper — or a piece of sharkskin; and at length, pumice, if he were fortunate, or ashes from the tryworks. But the final polish was from the palm of the hand, for then only would come the softness which, with the peculiar warmth, is known to no other material but ivory. All this had to be done slowly, and each stage completed before the next could be commenced, for the workman did not depend upon sandpaper to eliminate the coarse file cuts, or upon his palm to do more than it could.

Now the sharp, pointed instrument — a sail needle in a bone handle, perhaps — had to make the design under meticulous control. A surface of ever-varying curvatures — a different direction of pressure for every direction of line and for every infinite segment of line. A slip — and the entire engraving might have to be filed out and one side of the tooth resmoothed. Surely there were times when even the unhurried whaler might have regretted his elaborate conception of design long before he reached the moment when he could work the India ink or the "gunk and gurry" into the striations and begin the final palming.

The whalers had many tricks in their art. They would often soak the tooth in brine to give the ivory an orange richness. If the tooth had dried and lost its original softness, they would dip it in hot water for easier tooling. In engraving they would often paste a picture on the tooth and prick out the design, joining the points afterwards. There were many stock types in the repertoire of the tooth engravers — Godey ladies, Lincolns and Napoleons, little dramas like the "Sailor's Return," willow trees overhanging tombstones, and so on. But the teeth most favored by collectors today are those engraved freehand — ships and whaling scenes, the rare attempts at family portraiture.

A second use of the ivory was in carving, and it was in this technique that the scrimshaw artist generally showed himself at his best. Handles for canes, handles for coconut-shell dippers, and jaggig wheels were produced in large numbers. The last-named were the real masterpieces of scrimshaw, as anyone who has examined the delicacy of the small wheels with their fluted edges will admit. Occasionally one comes across an ivory carving of striking originality and workmanship. The Kendall collection has two such pieces that (*Continued on page 245*)



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# THE INSTITUTE GAZETTE

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PREPARED IN COLLABORATION WITH THE TECHNOLOGY NEWS SERVICE

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## *When Good Fellows Get Together*

**S**HORTLY after this Review reaches its readers, the gun will be fired to start an important Technology race. March 7 has been set by the Alumni Fund Committee as the date for the beginning of the All-Technology Regional Contest which closes on mid-night of March 28. During these three March weeks, men in every region of Technology's far-flung Alumni Empire will vie with one another in demonstrating their loyalty to the Institute and their endorsement of the all-alumni project to build the man as well as the mind.

For contest purposes the nation has been divided into seven districts, each district subdivided into regions so conceived as to afford every region a chance to win its district crown. From the contest, therefore, will emerge seven district winners. To each subscriber in each winning region will be presented a replica of one of Technology's oldest steins, as tangible evidence of his own contribution to victory. To the chairmen of the three winning regions which have outstanding records, there will be the further reward of a trip to, and honors on, Alumni Day, next June 6. Finally, as kudos for posterity to note, a plaque listing the winning regions will be installed in the new gymnasium.

Though the bars go down on March 7, everything accomplished since the beginning of the campaign last October will be counted. It is, therefore, possible to point out some probable front runners in advance of the start. At the moment, the leaders are as follows: in District 1, Chicago, with Pittsburgh and Detroit neck and neck and not far behind, followed by New York, Newark, and Philadelphia, while Boston, Washington, and the Californian cities bring up the rear; in District 2, Wilmington, leading the whole nation, pressed by Schenectady, Rochester, and Niagara Falls, all of whom show better than regional leaders in other districts; in District 3, Akron, with the closest contests afforded by Cleveland, Toledo, Dayton, and St. Louis; in District 4, Vermont; in District 5, North Carolina and Knoxville; in District 6, Montana; in District 7, Oklahoma, with El Paso's hot breath on her neck. In every district, every region has a chance, despite the starting advantage enjoyed by those mentioned, and there is every prospect of an exciting and amusing parade to the finish line.

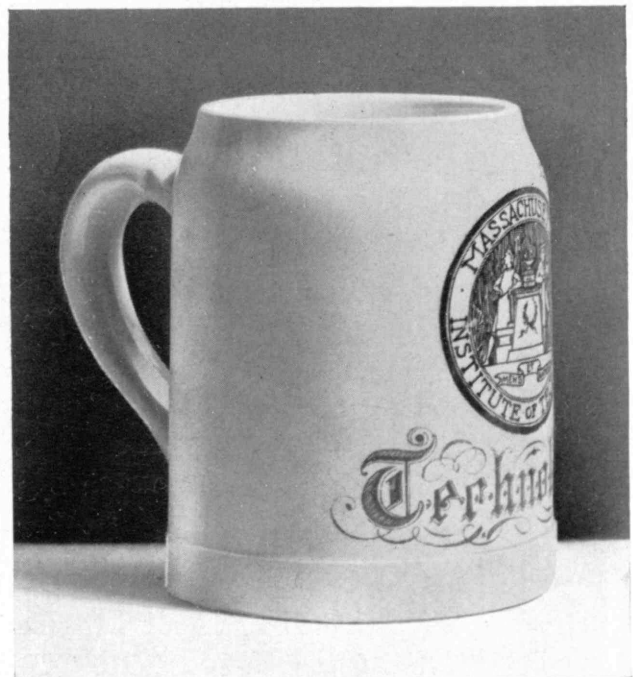
The Alumni Fund Committee intends to conduct this contest with a strong undercurrent of good feeling. No effort has been spared to make sure that in the month of March each Technology Alumnus shall have opportunity to meet a fellow Alumnus face to face and to express his opinion about the Alumni Fund with check, pledge, or otherwise. On the other hand, it is being equally stressed that Technology measures no man's loyalty in terms of his money contribution, that

the whole question at issue is whether or not good fellows are, in fact, ready to get together. If they are, there can be no question of the result.

Already the message is being carried to Alumni everywhere that the time to subscribe is now, and that this opportunity will not knock forever. They are being urged to give a rouse in the Marchtime, to let life and their fountain pens slip tether, to prove, as the singer sang, that the good-fellowship of Technology knows no bad weather—in short, to grasp the opportunity provided by this contest. That opportunity is best expressed by the stimulating words which will accompany every mailing piece from now to journey's end: "Build Yourself Into Tech."

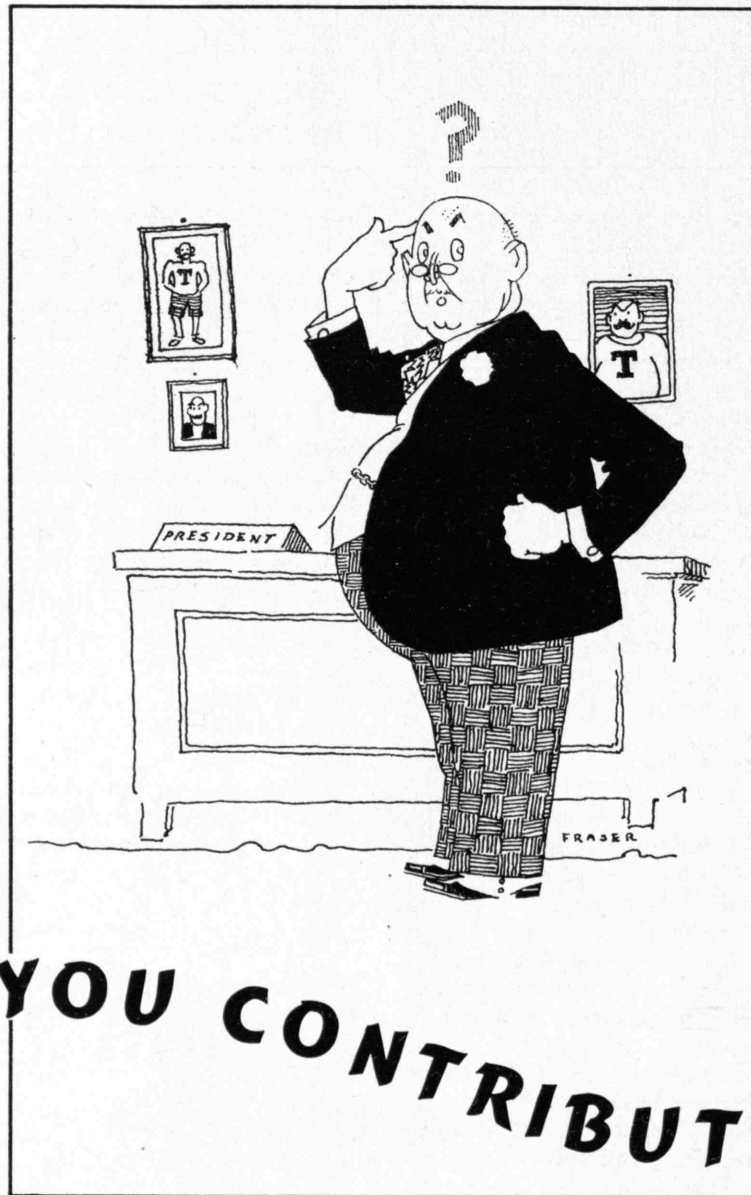
## *The Meaning of Friends*

**T**HE Friends of the M. I. T. Library have made a notable contribution to the Eastman Library in the gift of a great collection of spectroscopic literature from the famous scientific library of Professor Heinrich Kayser, the distinguished and now aged German physicist and dean of world spectroscopists. This unsurpassed library, which recently arrived from Bonn University where Professor Kayser lives in retirement, includes approximately one hundred volumes on spectros-



### AS TROPHIES

... replicas of this old Technology stein will be presented to every subscriber in every region which leads its district in the March All-Technology Regional Contest staged by the Alumni Fund Committee (see above)



## HAVE YOU CONTRIBUTED YET?

YOU PROBABLY HAVE, BUT IF YOU HAVEN'T HERE IS A PORTRAIT (SLIGHTLY ON THE SUBCONSCIOUS SIDE) OF YOURSELF IN THE ACT OF REMEMBERING TO DO SO TODAY SO THAT YOU CAN HELP YOUR REGION WIN IN THE ALL-TECHNOLOGY ALUMNI FUND CONTEST.

MUTE THE HORNS OF THE DILEMMA THAT ARE SOUNDING OUTSIDE YOUR WINDOW AND CLEAR YOUR DESK OF THAT STACK OF PLEDGE CARDS BY FILLING OUT ONE AMPLY AND LEGIBLY. THEN AND THEN ONLY WILL YOU FEEL LIKE CROONING, "FOR IT'S ALWAYS FAIR WEATHER, ETC."

**EMPHASIZING "WE ARE HAPPY", NOT "TECH IS HELL"**

*Published as one of a series of communications addressed to Alumni by the Fund Committee*



copy and more than five thousand reprints of articles published in technical journals and sent to Professor Kayser to form an international clearing house of spectroscopic information. Some of the articles go back to the 1860's, and the collection covers the most active period in the advance of spectroscopy when, with its aid, physics, astronomy, and chemistry were revolutionized, and medicine, biology, and metallurgy greatly affected.

Professor Kayser, now 85 years old, has had a long and fruitful life at Bonn University. He is the author of several standard encyclopedic works on spectroscopy, and his "Handbuch der Spectroscopie," published in eight volumes, is probably referred to in spectroscopic literature more often than any other work. Despite his advanced age he has just completed a monumental autobiography.

The Kayser collection has special significance for the Institute's spectroscopic staff, for under the direction of Professor George R. Harrison this group has for several years been carrying on an extensive program of determination of the wavelengths of the spectral lines of the chemical elements. This research is a logical extension of that which Professor Kayser and his collaborators have been working on for many years.

### *Camp Technology*

**P**ROPERLY qualified students taking any course at the Institute, as well as selected students of high scholastic standing in civil engineering from other colleges and engineering schools, will be admitted next July to Camp Technology, in Maine, the summer surveying school of the Institute's Department of Civil and Sanitary Engineering. The new plan, which was recently approved by the Corporation, opens one of the finest engineering field camps in the country to students who never before have had the opportunity to take the Institute's summer surveying course. To those Technology students who are not studying civil engineering, the summer course offers the advantage of broadening their general education by intensive field experience of a type which is useful in almost any branch of business or industry. To students in colleges which do not maintain engineering camps of their own, the field work at Camp Technology applies in actual practice the theories and methods studied in purely academic courses of preparation. The tuition fee for the seven weeks, including subsistence, has been reduced to \$100, the only additional expense being transportation to and from the camp.

The course, which begins late in July, includes field practice in the use and adjustment of surveying instruments, plane and topographic surveying, astronomical observations, hydrographic surveying, which includes stream gauging, drafting and map making from field notes, recitations, and lectures. There is also geodetic surveying, including the establishment of base lines and comprehensive triangulation systems. The instructing staff is composed of leading members of the Faculty of the Department of Civil and Sanitary Engineering. The Newark College of Engineering and the University of New Hampshire have already notified the Institute



**HOBBY SHOP**

*Students have responded with enthusiasm to the provision, by the Institute, of shop facilities for recreational use (see below)*

they will send students to the camp this summer, and other eastern colleges have indicated their interest in this coöperative plan of sharing unexcelled facilities.

Camp Technology is situated eight miles from East Machias, Maine, and only a few miles from the sea. It stands on an 850-acre tract of forest and rolling hills, which affords every territorial condition necessary for effective instruction in the various methods of surveying. The buildings stand on a bluff high above Gardner's Lake, one of the most beautiful in northeastern Maine, and include Bemis Hall — a large recreation center for students, containing also a store, a post office, and the administrative offices. Adjacent to it are buildings with drafting and recitation rooms and lecture halls. The student sleeping quarters are in comfortable, one-story barracks overlooking the lake, with near-by facilities for swimming. There is also a large recreation field with tennis courts, and students have opportunities for boating and week-end camping and fishing trips to near-by lakes and streams. The staff has separate quarters, and there is a well-equipped infirmary with a physician in charge throughout the period of the camp.

### *In the Interest of Hobbies*

**T**HOSE who have hobbies of their own and know the peculiar pleasure and relaxation they bring, will realize the possibilities that lie in the well-equipped workshop just opened by the Institute for the use of its students. This wholesome contribution to the modern movement for the better use of leisure and the development of interesting and useful avocations was established in the belief that hobbies may be considered part of a well-rounded education. The new student workshop is a recreational facility in which intelligent craftsmanship will be encouraged. It will appeal particularly to those students of inventive or creative ability who up to now have had, at the Institute, no free outlet in that direction.

The shop is equipped with the usual hand tools for woodworking and metalworking, as well as a circular saw, jointer, grindstone, emery wheel, jig saw, drill press, wood and engine lathes, and sander. Later, if the demand arises, facilities for photography, electroplating, metal spinning, and other hobbies may be added.

Some of the equipment, such as workbenches, vises, and a few machines, were donated by various departments of the Institute, and a group of enthusiastic students did all the work of fitting out the shop. They built a lumber loft and have refinished all benches, installed cabinets, tool racks, and shelves. By an arrangement of countershafts, they are able to use one motor for several machines, and they have shown considerable ingenuity in designing supplementary fittings for various operations.

The possibilities of the shop are hinted in the work already under way. Several students are building miniature aircraft engines; another is busy on a new type of slide rule of his own design. Two others have ship models planned, while another is working on some secret invention. A number of students have asked to be assigned specific projects and they will be given the interesting task of building objects for the Institute's rapidly expanding museum of science and industry. In fact, one student is already at work on the reproduction of an ancient loom which will be added to the exhibit that shows the evolution of textile machinery.

The student workshop is the outgrowth of an idea that has been under consideration for several years. A survey in the autumn of 1934 indicated a lively hobby

activity in the freshman class, and there was evidence that many students in the upper classes were interested. Freshman hobby shows were held on Open House Days in 1935 and 1936, and it is quite likely that the stimulus of the new shop will result in an even larger exhibit at this year's Open House, scheduled for April 30.

Arthur C. Watson (see page 221), who is in active charge of the development of the museum, is directing the work of the hobby shop. As former assistant curator of the New Bedford Whaling Museum, he is himself skilled in the design and construction of models, and his hand-carved scale models of the various species of whale is convincing evidence of the fact.

### Appointment

**DOUGLASS VINCENT BROWN**, who since 1933 has been assistant professor of medical economics in the Harvard Medical School, has been appointed assistant professor of industrial relations in the Department of Economics and Social Science at the Institute. Well qualified by training and interest to assist in the study of employer-employee relations, Dr. Brown will devote himself principally to the activities of the Institute's Industrial Relations Section, which was established recently for research and training in the field of industrial relations.

Dr. Brown is a graduate of Harvard University, having received his bachelor's degree in 1925 and his master's degree in arts a year later. In 1926 he held the Henry Lee Memorial Fellowship and a year later was awarded a Sheldon Travelling Fellowship. He was appointed an instructor in the department of economics of Harvard University in 1929 and three years later was promoted to the rank of assistant professor in the economics division of the Harvard Medical School.

### The Coming Elections

**VOTING** for officers to represent the great alumni body of the Institute is a privilege and a responsibility which comes to all Alumni once a year. The National Nominating Committee — which this year included J. Lloyd Wayne, '3d, '96, Redfield Proctor, '02, Franklin O. Adams, '07, Edward L. Moreland, '07, Albert E. Wiggin, '07, Donald N. Frazier, '11, Frederick W. Barker, '12, Charles H. Chatfield, '14, Rolfe A. Folsom, '18, and Alfred T. Glassett, '20 — presents the following slate on the ballot now going in the mails to 30,000 Alumni.

*President of the Alumni Association*, H. B. Richmond, '14, VI, General Radio Company. *Vice-President*, Raymond Stevens, '17, XV, Arthur D. Little, Inc. *Executive Committee*: Hovey T. Freeman, '16, II, Manufacturers Mutual Fire Insurance Company; Edwin D. Ryer, '20, VI, Barbour Stockwell Company. *Representatives at Large on the Alumni Council*: Van Rensselaer Lansingh, '98, VI, Molybdenum Corporation of America; Theodore B. Parker, '11, I, Engineer; Jerome C. Hunsaker, '12, XIII-A, Department of Mechanical Engineering; Winfield I. McNeill, '17, XV, Colgate-Palmolive-Peet Company; Eric F. Hodgins, '22, X, *Fortune Magazine*.

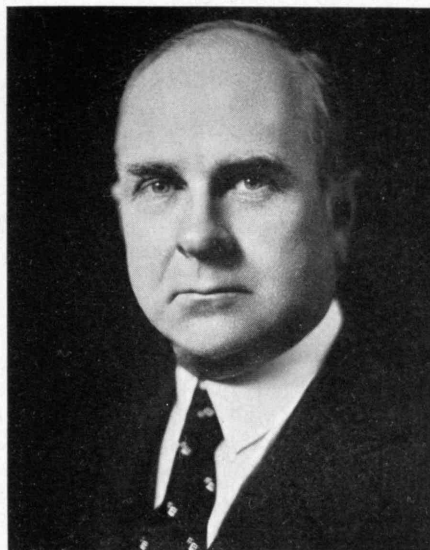


Harold Stein

#### SOLE PRESIDENTIAL NOMINEE

... for the Alumni Association, 1938-1939, **H. B. Richmond**, '14, Treasurer of General Radio Company, Cambridge. Associated with his present company since 1919, Mr. Richmond is widely known as an electrical engineer. He is a fellow of the Institute of Radio Engineers and a past president of the Radio Manufacturers Association. He is also a member of the American Institute of Electrical Engineers. As a member of the Alumni Council since 1919, he has served on the national nominating committee, on the committee on historical collections, and is a member of the Alumni Association's executive committee.





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## ALUMNI NOMINEES

... for term membership on the Technology Corporation (left to right): Harry P. Charlesworth, '05, Assistant Chief Engineer of the American Telephone and Telegraph Company; Donald G. Robbins, '07, Secretary, Comptroller, and Director of the International Braid Company of Providence, R. I.; Marshall B. Dalton, '15, President of the Boston Manufacturers Mutual Fire Insurance Company, as well as the Paper Mill Mutual Insurance Company of Boston, and retiring President of the Alumni Association

In addition to the foregoing officers of the Association, the Committee presents nominations for term membership on the Institute's governing body, the *Corporation*. For the three vacancies this year the candidates are: Harry P. Charlesworth, '05, VI, American Telephone and Telegraph Company; Donald G. Robbins, '07, II, International Braid Company; Marshall B. Dalton, '15, I, Boston Manufacturers Mutual Fire Insurance Company.

Members of the National Nominating Committee are elected by districts, and the terms are staggered so that only a third of the body changes at one time. Since this year we lose Messrs. Adams, Folsom, and Wiggin, Districts 8, 9, and 10 — the districts they have served — are represented by the following nominees from whom the Alumni elect one for each district: *District 8*: Charles A. Smith, '99, I, Georgia Power Company; Donald W. Southgate, '11, IV, Architect; William J. Sherry, '21, X, William J. Sherry, Inc. *District 9*: Charles F. Willis, '06, III, *The Mining Journal*; George M. Gadsby, '09, V, Utah Power and Light Company; Hiram E. Beebe, '10, VI, The Beebe Company, Investments and Real Estate. *District 10*: Ernest B. MacNaughton, '02, IV, First National Bank of Portland, Ore.; William C. Furer, '06, IV, Architect; John C. Kinnear, '07, III, Nevada Consolidated Copper Company.

## New Field Station

THE School of Chemical Engineering Practice of the Department of Chemical Engineering will soon open a new field station in the plant of the Hercules Powder Company at Parlin, N. J., where excellent facilities are available for the study of chemical engineering principles in plant operations. These include catalytic oxidation of ammonia to produce synthetic nitric acid, vacuum concentration of sulphuric acid, chlorination of

rubber to produce a synthetic plastic used in the manufacture of corrosion-resistant paint, and many other operations, including the production of nitrocellulose and the concentration of alcohols by distillation.

The new station will be housed in a specially designed building now being constructed by the Hercules Powder Company for the use of the Institute's staff and students. This will include an office, combined laboratory and shop, and a library and large conference room. The Practice School is operated under the direction of Professor Walter G. Whitman, '17, Head of the Department, and the staff of the new station will include Robert C. Gunness, '34, as director, and James G. Baker, '36, as assistant director. Both were formerly on the staff of the Boston station of the School, which has been discontinued and relocated in the new situation.

The student enrollment of the School is normally between 45 and 60 men a year, and is divided into several smaller groups which attend each station for a two-month period. Groups studying at Parlin will live together in special quarters at Brunswick, N. J., a few miles from the plant.

## 197th Meeting

B. ALDEN THRESHER, '20, the Institute's Director of Admissions, was the guest and principal speaker at the regular monthly meeting of the Alumni Council on January 31. In describing the policies and procedures now being followed to determine the 600 successful candidates who will constitute the Institute's Class of 1942 when it matriculates next autumn, he spoke appreciatively of the part played in their selection by the Alumni.

Applicants are now judged upon a basis which includes a consideration of their nonacademic qualities, as well as their grades. This means, as Professor

Thresher emphasized, that correspondence alone will not suffice. On the contrary, each applicant is required to have an interview with an Institute representative, and, since well over half of the candidates are from points outside New England, it is obvious that the Faculty Committee on Admissions depends upon reports furnished by Honorary Secretaries and officers of alumni clubs.

Following Professor Thresher's remarks, the Council also enjoyed a showing of a remarkable colored cinematic record of yachting, including sequences made aboard J Class contenders which participated in last summer's competition for the America's Cup. The man who made this film, Frank H. Conant of the Institute's Photographic Service, added to its interest by contributing a voice accompaniment which explained some of the more technical details involved.

During the business session, J. E. Burchard, '23, Vice-Chairman of the Alumni Fund Campaign, spoke on its current condition; and H. B. Richmond, '14, President elect of the Alumni Association for 1938-1939 (see page 228), reported for the Committee on Historical Collections.

Foreseeing that the removal of the School of Architecture from the Rogers Building on Boylston Street, Boston, during the coming summer would mean that no Institute building would bear the name of the Institute's founder, the Committee recommended that "the Alumni Council suggest to the Corporation that it consider the advisability of designating the entrance unit of the main educational group now under erection on Massachusetts Avenue as the Rogers Building." This recommendation the Council endorsed by a unanimous vote.

It was decided to omit the regular February meeting in view of the Boston alumni smoker scheduled for the 24th, thus leaving three evenings remaining on the 1937-1938 program: March 28, April 25, and May 23, which last, by an interesting coincidence, will be the Council's 200th.

## Public Health

A NEW course in public-health education, designed to train professional workers in one of the most important fields of the general public-health problem, began with the opening of the second term of the school year last month. The course is in charge of Professor Clair E. Turner, '17, of the Department of Biology and Public Health. His conviction is that if the public can be trained in the proper care of health, dietary-deficiency diseases and many infectious diseases will be virtually eliminated.

The purpose of the new course is to teach professional public-health workers the technique, scope, and methods of health education, as well as its relation to the general health problem. Professor Turner believes that education in this field must not only train public-health officials how to avoid disease and safeguard the public in general but must attack the fundamental problem of teaching the average citizen how he, as an individual, can avoid disease.

The methods and techniques employed in public-health instruction which will be considered in the course include the press, radio, motion pictures, lectures, exhibits, reports, personal contacts, and community campaigns. A number of graduate students from the Institute and from the Harvard School of Public Health are registered in this course, which is open also to properly qualified public-health workers.

## Harry W. Tyler, 1863-1938

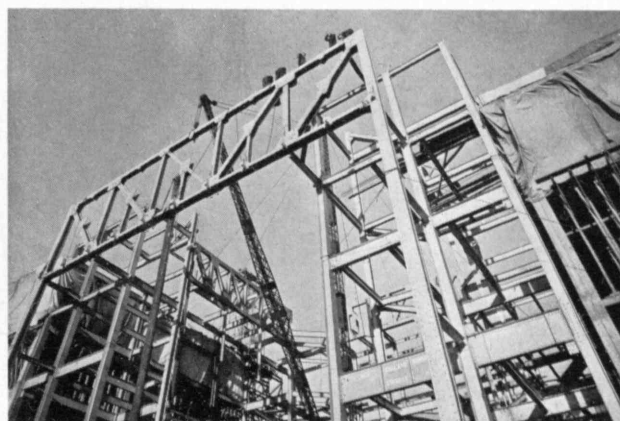
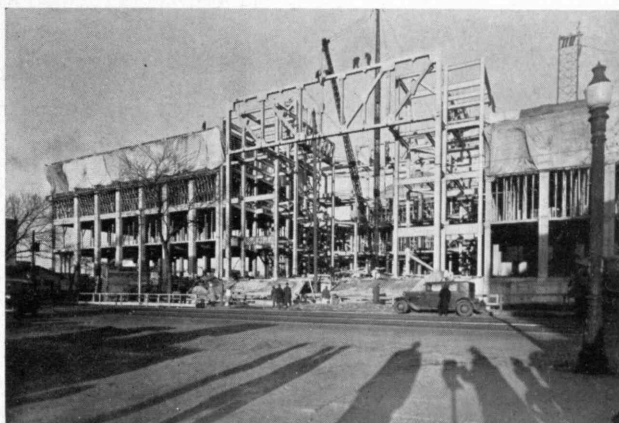
IN the death of Harry W. Tyler, '84, Emeritus Professor of Mathematics and former Head of the Department of Mathematics, on February 3, the Institute lost not only an Alumnus whose loyalty was best expressed by his unfailing interest in the advancement of Technology, but one whose distinguished career as a member of the Faculty was an inseparable component of its history for 46 years. Dr. Tyler was born in Ips-



### TIN HAT

*The high-voltage, or nuclear, research laboratory strikes a new note in the Cambridge sky line. The Van de Graaff generator stands under the welded "derby hat"*





#### INNER GRACE

*The steel and concrete structure of the rising Architecture Building has a dramatic beauty of its own. The steel supports the dome*

wich, Mass., and died in Washington, D. C., in his 75th year, after an illness of a few hours. Mrs. Tyler, as will be recalled, died last November.

Gifted as a speaker and endowed with a sense of humor both whimsical and penetrating, Dr. Tyler will long be remembered by all who knew the pleasure of his delightful talks and his witty introduction of guests on the frequent occasions at which he presided. They will remember him as a man of medium stature, with full, gray hair, and a generous beard, who spoke in a deep, rich voice with words of great preciseness. They will recall, too, that when he arose to speak he would place widespread finger tips upon the table, lean forward with eyes twinkling over his spectacles, begin his talk with a deliberative, "Ah, Gentlemen," and a series of little coughs.

A brilliant student, but never a grind, Dr. Tyler found time in his undergraduate days to participate in student activities, and in his senior year he was president of the board of directors of *The Tech*, which was then but three years old. Among the students in the Course in Chemistry in which he was studying was Miss Alice Brown, who later became Mrs. Tyler. Their marriage, soon after they were graduated, marked the beginning of a long and happy companionship of united interests and high ideals. Their summers for many years were spent on the shores of Lake Winnepesaukee in New Hampshire, where Dr. Tyler had ample opportunity to indulge in his hobby of mountaineering, which later led to his election as president of the Appalachian Mountain Club. With them in those years were their four daughters: Dr. Margaret Tyler of New Haven, Conn.; Mrs. Wallace H. Walcott of Scarsdale, N. Y.; Mrs. J. H. Phillips of Flushing, N. Y.; and Mrs. Stafford Johnson of Cambridge, Mass.

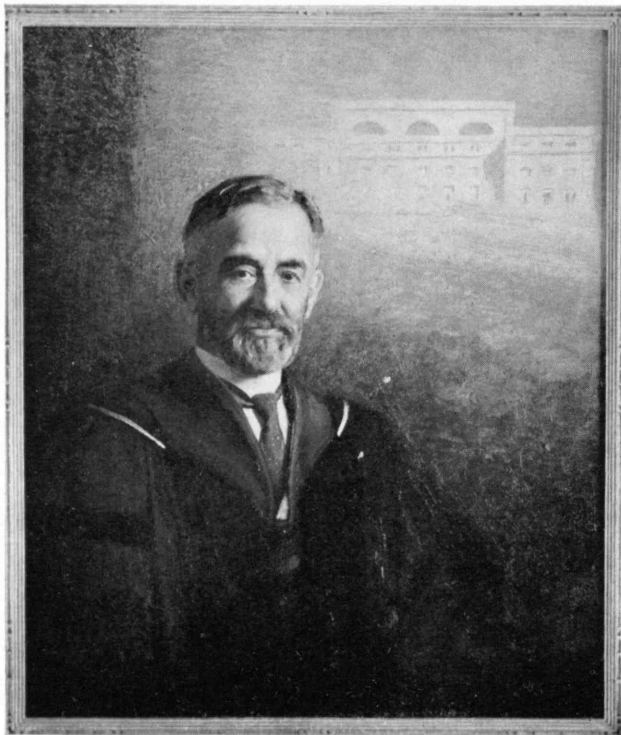
After his graduation, Dr. Tyler was an instructor in mathematics at the Institute for three years and then, having been granted leave of absence, spent two years abroad in travel and study. He carried on advanced work at Göttingen, and at Erlangen completed the requirements for his doctorate of philosophy. Returning to the Institute, he began a career of great activity and steadily increasing influence. In 1890, at the age of 27, he was appointed an assistant professor of mathematics, and in three years had reached the rank of professor.

Soon after his appointment in 1901 as head of the Department of Mathematics, which he administered with such distinction until his retirement in 1930, he was appointed to the chair of Walker Professor of Mathematics.

Throughout these years Dr. Tyler found time outside his departmental duties to take an important part in the development of the Institute's administrative and academic policies. Prior to 1906 he was for 15 years secretary of the Faculty, a position which in those days combined the duties of dean, registrar, and assistant to President Walker. His unwavering faith in the future of the Institute prompted him to oppose vigorously the proposed merger of Technology with Harvard. When at last the fight had been won, he entered more zealously than ever into the affairs of the Institute, which at that time was passing through a serious financial crisis. His sound judgment and vision contributed importantly to M.I.T.'s subsequent steady development and the growth of its prestige. In 1913 he became chairman of the Faculty, a position in which for two years he helped to shape Technology's academic course. During this period and thereafter, he served on many important faculty committees. He was also president of the Faculty Club from its founding until his retirement.

Dr. Tyler was chairman of the Walker Memorial Committee and led the successful campaign for a building devoted entirely to student activities. His concern for the welfare and broad development of students was indicated anew by his active interest in the present campaign for the greater student recreation center, and as president of the Washington Society of the M.I.T. and chairman of its campaign committee, he had energetically supported it. Last year, Dr. and Mrs. Tyler established the Alice Brown Tyler Fund, the income of which is to be used for the welfare of women students at Technology.

As one of the founders of the College Entrance Board examination system in 1901, Dr. Tyler was always active in its affairs and was vice-chairman of the board at the time he retired from the Institute in 1930. When he moved to Washington he devoted himself to the American Association of University Professors, of which he was a former vice-president and until recently acting general secretary. Meantime, he was consultant on scientific literature to the Library of Congress.



HARRY WALTER TYLER, 1863-1938

*The portrait of the late Professor Emeritus, painted by Isaac B. Hazelton, '94, and presented to the Institute on Alumni Day, 1936*

On Alumni Day in June, 1936, a portrait of Dr. Tyler was presented to the Institute by a group of his friends on the Corporation, the Faculty, and among his former students. Happily, Dr. Tyler was present to hear the address of presentation by Dean Samuel C. Prescott, '94, and to reply humorously that he congratulated the committee, the artist (Isaac B. Hazelton, '94), and the Institute on the possession of a portrait which "I should be proud to have at any time resembled — let us say as a first approximation."

### House Master

**W**ALTER C. WOOD, '17, who, as sailing master of the M.I.T. Nautical Association, is well known among the students and members of the staff, has been appointed master of the Senior House, which will occupy the quarters of the Graduate House after that group moves to Riverbank Court next autumn.

Mr. Wood, who will become master of the Senior House with the opening of the academic year next September, is head of the Narragansett Yacht Fittings Company and is widely known as a designer of special equipment for yachts, as well as for his ability as a racing skipper. He has long been active in the popularization of small-boat racing. The rapidly growing interest in the sport among college groups and Technology's leadership in dinghy sailing are due in no small degree to his knowledge of sailing and his ability as an instructor. During the World War, Mr. Wood was an instructor in the Army aviation school at Technology and later became chief of instruction at Arcadia, Fla.

## THE TREND OF AFFAIRS

*(Concluded from page 214)*

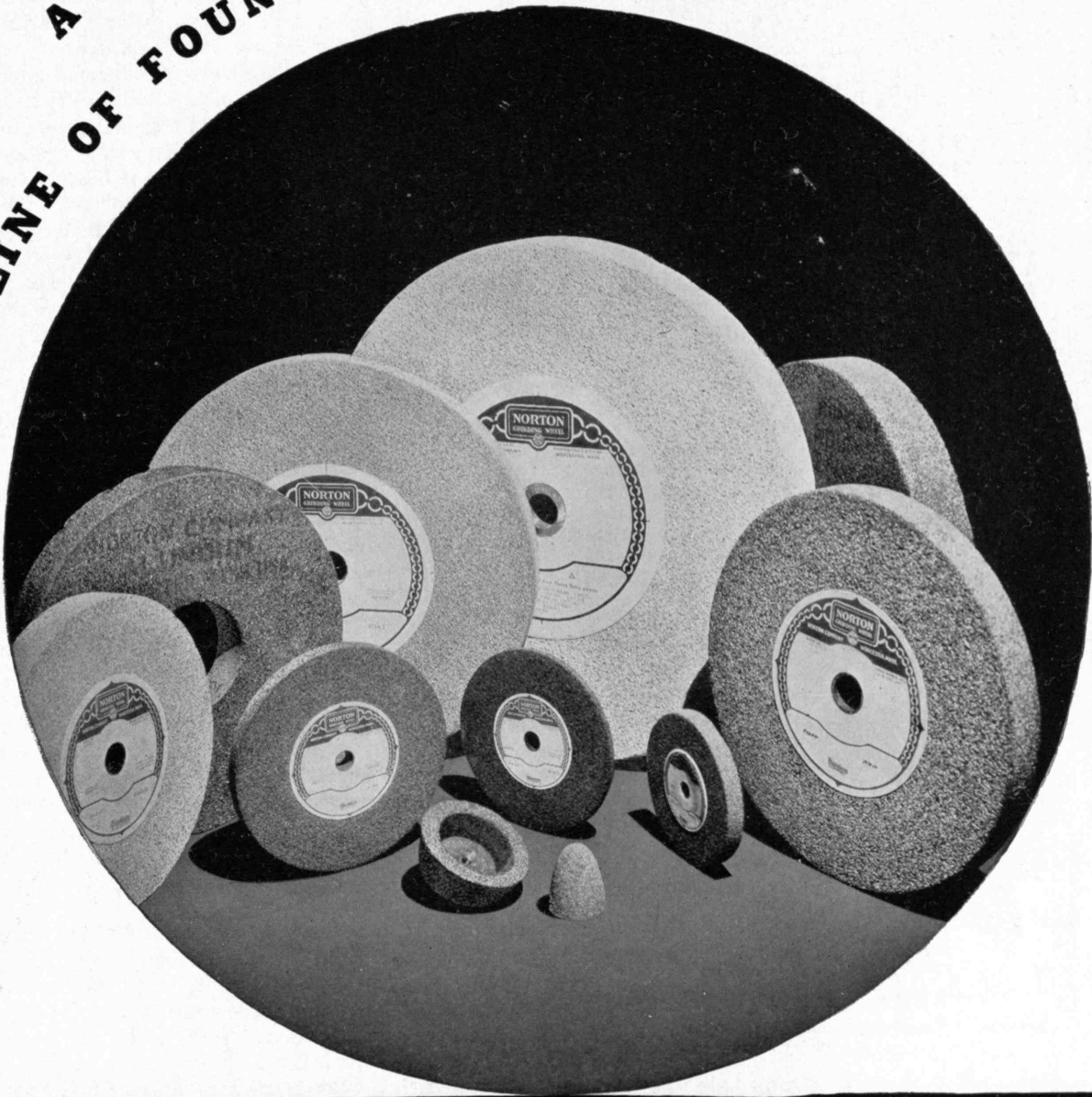
a layer of deposits over more than one-half the earth's area, which layer is about 10 miles thick and would require for its formation the erosion of a layer about 20 miles deep from the continents — more than most geologists will admit possible. To aggravate this discrepancy, Kuenen points out that very little of the material eroded from the continents ever reaches the deep sea, the vast bulk of such debris settling on the continental shelves. Only the finest wind- and sea-borne dust ever reaches the abyss. According to the Dutch oceanographer, the rate is really about one-third Schott's figure, and he estimates that the square kilometer of volcanic material which he believes is being extruded onto the ocean bottom yearly would, if spread out evenly, form a layer  $1/3,000$  centimeter thick. What is more, says Kuenen, Schott's data really check this figure surprisingly well, for the *Meteor* samples contained 70 per cent of water by volume, indicating that the time needed to deposit one centimeter of *solid* material is 3,300 years and not 1,000.

Kuenen argues further that the present rate is probably a fair average for all time (geologists' and not sporting writers' time), for in the very earliest periods, when the lime-secreting planktonic organisms were not so prevalent as today, there was far more erosion of continents not yet effectively protected by plant life and that similar compensations existed in extremely humid or unusually dry eras.

Another correction which must be attempted before the thickness of deposits is arrived at is the effect of compaction. Since there is little evidence to show how sediments will behave when laid down under a pressure of 7,000 pounds, or so, to the square inch, it was assumed that they settle much as in shallow water. On that basis the original floor of the permanent seas is covered by about three miles of sediment. A random examination of the problems affected by this condition discloses that the temperature of the earth below this blanket of colored mud should be 200 degrees C. higher and the crystalline crust about three miles thinner. This ooze also interferes seriously with Wegener's theory of continental drift.

To an observer too ignorant to follow the hard reasoning and savage checking that lead from a simple measurement to pronouncements on the fate of worlds, the whole affair takes on a tinge of mystery, even drama. An explorer on a lonely front of science drops a plummet into the depths of the sea and drags up a handful of mud from which he squeezes a philosopher's stone. Another scholar, from another country, finds the cutting false, and by judiciously mixing pure logic with a strong dose of judgment (did the Delphian oracles do far otherwise?), learns how to reshape the facets. With light thus brought from the abyss, a whole series of problems related (in the layman's eyes) only by their huge dimensions and vast displacement in time, are brought into the focus of understanding. Considering the public's confidence in science which, as far as it is concerned, is mainly so established, one may speak of the Scientific faith as one does of the Christian.

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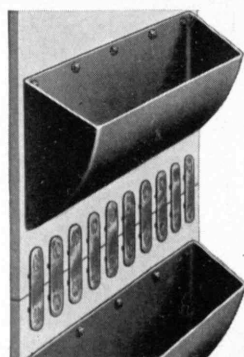
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## PUTTING GERMS TO WORK

(Continued from page 217)

remained merely as an interesting fact for a half century. Glycerin was well known as a by-product of soap manufacture, and this source is ordinarily ample to meet the normal needs for this commodity. With the development of nitroglycerin as a high explosive for many purposes, especially during the War, soap factories were unable to supply the vast quantities desired by warring nations and makers of munitions. Prices soared to unheard of heights. Chemists sought new methods, but without great success. Germany, with a shortage of fats, was in distress, but as I have indicated, turned some of her distilleries into fat factories. These, however, were far from adequate to meet demands. Bacteriologists in several countries, possibly remembering the work of Pasteur, had already sought their yeast cultures, with the hope that here might lie success. And here it was found, for in 1916 or 1917 a hard-working young investigator in the Internal Revenue laboratory at Washington was rewarded by the discovery, patented in 1918, that when yeast is forced or trained to grow in sugar solutions having a suitable alkaline instead of an acid reaction, the decomposition of the sugar results in a smaller yield in alcohol but a considerably increased yield of glycerin — not the mere small percentage found by Pasteur as a maximum. The announcement stimulated research. By use of sodium sulphite to produce alkaline reaction, and by training the yeast to withstand high concentrations of this salt, the glycerin product was increased until it represented more than a third of the sugar fermented.

Production on a vast commercial scale was carried out at various places. With the cessation of hostilities and the normal supply from soapmaking, the industry ceased to be a profitable one, and little fermentation glycerin is now made. But the process is available when needed, and science gained greatly, for by the researches following the period of intensive production, much insight was gained into the complex reactions involved, and a new step was taken in the process of unlocking the secret of fermentation and the complex chemistry of the living cell. Undoubtedly numerous new secret fermentation processes have already been found which will have their devastating application in the next great war.

Another instance of putting germs to work is also, in a large degree, the outcome of the War, although it had its inception at an earlier time. The possibility of synthesizing rubber cheaply on a commercial scale had been for many years the dream problem of organic chemists, since the synthesis had actually been accomplished in the laboratory in 1860. This, therefore, may be regarded as the starting point. For such a synthesis, either isoprene or butadiene was required. The latter could be prepared from butyl alcohol, but unfortunately there was no cheap source of this reagent. The problem became more pressing with the great demand for rubber, first as a result of the bicycle and then, after 1900, when the automobile began to assume importance, before the great production of plantation rubber had met market requirements. Pasteur had found, about 1860, that butyl alcohol was produced in small quantities in certain microbic reactions, but with the (Continued on page 236)

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## PUTTING GERMS TO WORK

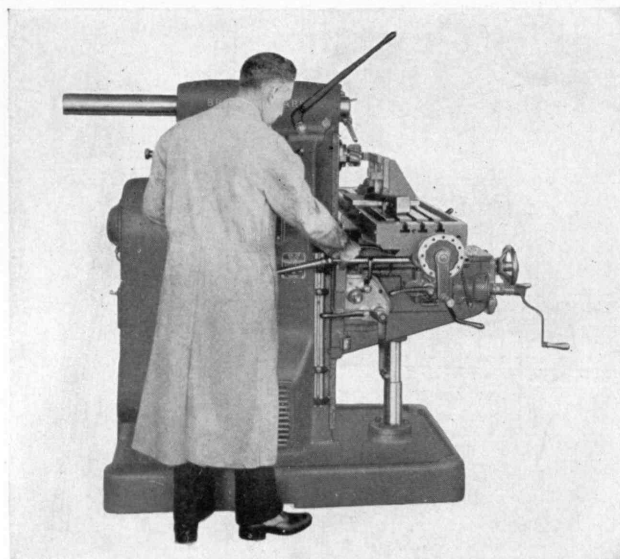
(Continued from page 234)

pressure of more important researches had not regarded it of special significance. However, with characteristic thoroughness he had recorded and published the fact. Others later supported and confirmed his findings.

Sometime in the Eighties an organism, *B. orthobutylicus*, was described by Fitz, but as new microbes were constantly being reported in that era, little attention was paid to it. Twenty years later, when the rubber shortage was becoming most acute, it was remembered, and a search for it or for new organisms was stimulated. This search was successful but not until too late to affect the rubber situation, for by 1903 plantation rubber from the new rubber-tree farms of the Straits Settlements, Java, and Sumatra had begun to be marketed and soon far outstripped the wild rubber from Brazil in quantity. Nevertheless, at least two bacteriologists persisted in the search for butyl alcohol producers. Of these, one was Chaim Weizmann, of whom all may have heard as the leader of the Zionist movement to recreate a new Jewish state in Palestine; the other was a worker named Fernbach at the Pasteur Institute in Paris. By 1915 each of the two men had discovered an organism which acted on starch or sugar, yielding small amounts of butyl alcohol mixed with acetone and ethyl alcohol. This was interesting but at the moment unimportant commercially.

The rediscovery was important, however, for by this time the World War had begun. New high explosives, recently developed, came into use, among them the British cordite, which required in its preparation not butyl alcohol but acetone. The airplane also came into use as a War engine. To prepare the dope used on the wings, a solvent was needed and acetone was the best. The old sources of acetone from acetates or by distillation of wood were vastly incapable of meeting the demand, and stupendous efforts were made to discover new processes and develop supplies or suitable substitutes. The new biological sources were made known, and fermentation was feverishly pursued. Acetone could be made by microbes! By 1916 some large plants were established in England. Two others were shortly started in Toronto, and soon after, an old distillery in Terre Haute, Ind., was converted into another. Others in Peoria, Ill., were being conditioned. In Wilmington, Del., the Du Ponts had already developed a new process. A somewhat similar fermentation had been worked out for using seaweeds, and near San Diego, great pits were developed in which giant kelps from the Pacific could be converted into acetone and alginic acid by fermentation. The microbes had been put to work with great success. But the butyl alcohol which had been sought at first was now a drug in the market — a surplus by-product — and accumulated in vast quantity. A new problem confronted the chemist, the answer to which came later.

With the end of the War came the new problems of what to do with these great War industries which had been created. Some of the plants ceased to operate, as has already been mentioned in the case of glycerin production. But at this juncture the skill of the peacetime chemist was brought to bear on the problem. Both acetone and butyl alcohol are (Continued on page 238)

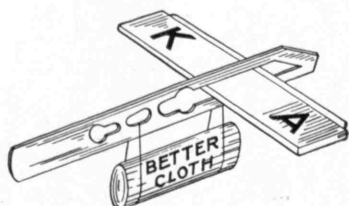


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## PUTTING GERMS TO WORK

(Continued from page 236)

excellent solvents for many organic compounds such as nitrocellulose or cellulose acetate — the material we find in rayon. They also react readily with other chemicals. A whole series of new industrial products have been developed, of which the lacquers have perhaps been most important. The Duco which gives such a durable finish and fine luster to your car, paint removers, varnishes, and a host of other products are the results. So valuable have they become that a constant and growing demand for these ultimate products of the work of bacteria has persisted; a new fermentation industry has grown from a War activity and become a flourishing and necessary peacetime one.

Lactic acid, such as we recognize in sour milk, is also a microbic product of many uses. When we speak of sour milk, the change in it is ordinarily looked upon as a defect, reducing the food and the commercial value of milk. When, on the other hand, it is sold as cultured milk or Bulgarian milk, kumiss, yoghurt, or by a variety of special names coined by dealers, we may gladly pay a much higher price for the product. Why? Largely because of the use of special types of bacteria which are used in a controlled fermentation, producing a mild acidity and flavor which is far from unpleasant. To us it may be an acquired taste, but in this respect it is not different from many of our experiences in viands and beverages, since from childhood we are continually experimenting in the gastronomic field. The popularity of these fermented milks became due, in a large measure, to Metchnikoff, who observed that in certain parts of Bulgaria and in the Near East there seemed to be a certain correlation between longevity and freedom from intestinal putrefaction, on the one hand, and the generous use of soured milk in the diet, on the other. Since in those countries all milk is extremely dirty and readily becomes sour, clean fresh milk as we know it in America is practically unknown. All milk, therefore, either sours spontaneously, or the action is hastened by warmth, possibly after the addition of some milk already soured. Metchnikoff examined the soured milk bacteriologically and isolated the prevailing organism, which he called *Bacillus bulgaricus*, and on his return to Paris introduced the soured milk as a curative agent for those suffering from dietary indiscretions. The results were often astonishingly favorable and never or rarely adverse, and sour milk therapy became widely known. Somewhat later a still better strain, known as *B. acidophilus*, was developed in this country, and has achieved considerable commercial significance.

The theory underlying this use of bacteria is simple. These organisms readily transform sugars, especially milk sugar, into lactic acid in the absence of oxygen, and the lactic acid thus produced in the intestinal tract restrains the development of putrefactive bacteria which (according to the hypothesis of Metchnikoff) acted on proteins, with the formation of toxic substances which were absorbed by the body. Thus one army of germs is sent to prevent the depredations of other germs in that 30-foot biological battleground in our intestinal tracts.

(Continued on page 240)

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## PUTTING GERMS TO WORK

*(Continued from page 238)*

It has been known for generations that butter made from distinctly sour cream is of superior flavor and has good keeping quality. Not until 1884, however, when Storch in Denmark actually investigated the bacteriology of butter, was there definite knowledge. He demonstrated that presumably pure cultures of lactic acid bacteria could be used advantageously for souring cream which had first been pasteurized, but it remained for later investigators to prove that the best flavors could be produced by a joint action of lactic bacilli and some other organisms which bring about particular fermentations yielding the special flavor-giving substances. The famous *Bacillus* No. 41, isolated by Conn from Argentine butter sent to the Chicago World's Fair in 1893, was the first American culture which supplied both acid and flavor. In 1896, S. C. Keith, '93, of the Institute staff, produced the first duplex culture, containing the two types of bacteria required for the best results, but it did not prove a commercial success because of the detail required in its use and was soon forgotten. However, 23 years later Hammer and Bailey in this country and Boekhout and De Vries in Holland independently rediscovered the desirability of the coöperative effect of at least two types of organisms.

Ten years later it was shown that the substance, diacetyl, is responsible for the characteristic aroma of fine butter, and subsequently it was shown that diacetyl is produced by the action of bacteria on the citrates in the milk. The function of the lactic acid bacteria is to check other organisms and to lower the hydrogen-ion concentration to a point which permits the citrate splitters to carry on their work. Along with this action there is associated production of volatile acids and a number of other substances. A ripened starter, added to a large mass of pasteurized cream to be churned, can then supply the desirable flavor for the whole mass and yield a superior butter. Use of butter cultures has also made it possible to give a real butter flavor to high-grade butter substitutes such as oleomargarine, which are thus made excellent in taste as well as in actual food value. Lactic acid itself has many technical uses and has for years been made on a considerable scale. As lactic acid is a food acid, that is, can be utilized by the body as a source of energy, it may be employed in the manufacture of soft drinks, food preparations, in cheese making, and for medicinal purposes, as well as in processes such as dyeing, sour-mash distilling, and doubtless many other technical processes where a nonvolatile acid is desirable.

Germs have also been put to work in other industries. In the textile industries, the so-called retting of hemp and flax is a process in which microbes are employed to dissolve out the gummy materials which bind the individual linen fibers into stiff bundles, but which, on being released from this bondage, can be combed, spun into yarns, and woven into fabric. The dew ponds of southern England and Ireland and the famous river, Lys, in Belgium are natural habitats of these bacteria, and it was from such original sources that the cultures were obtained which were then forced to carry on their work in controlled captivity. *(Continued on page 242)*



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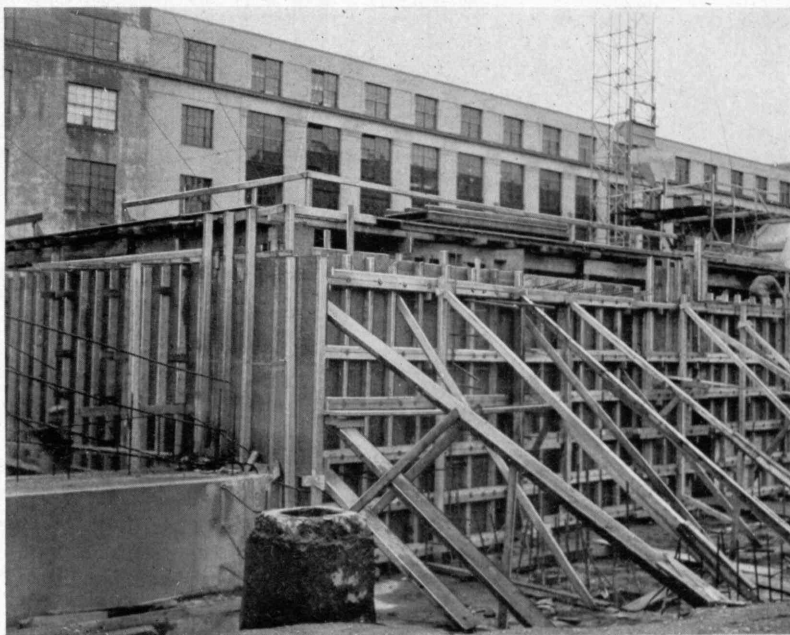


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## PUTTING GERMS TO WORK

(Continued from page 240)

use of bacteria in seed inoculation and as nitrogen gatherers in association with leguminous plants is too well known to require any comment at this time. So also is the characteristic fermentation employed in making sauerkraut and in the pickle industry, although the specific organisms involved are less common than are some already considered.

Thus far the activities of yeast and bacteria have been especially mentioned. There are others equally interesting to the biologist, if not so spectacular or so obvious. But scant reference has been made to the utilization of molds, a class of microbic life of which one thinks generally with disgust rather than respect and admiration. Yet among these lowly and despised plants there are species which man has put to work in profitable ways. By one of these which has been developed in recent years, a new fermentation industry has come into being — the manufacture of citric acid.

For many years citric acid was known only as the natural acid of lemons, oranges, limes, and other citrous fruits. The acid itself, as a pure chemical, had a few uses — in medicine, for example — and still fewer industrial or other uses except as an occasional reagent. Most of the citric acid of commerce was imported from Sicily. A few years ago it was discovered that when certain molds, known as species of *Aspergillus*, are grown in shallow trays on the surface of nutrient cane-sugar solutions and in the presence of abundant oxygen, the sugar disappears. A part serves as food for the mold, while that not utilized by the fungus for growth is transformed into citric acid and oxalic acid and can be recovered in the form of pure crystals by proper treatments. Nearly all the commercial citric acid used today in soft drinks, foods, such as certain soups, and for technical uses in chemistry is now produced by fermentation. It is not a large industry, but it is likely to be a growing one, for chemists find ways of utilizing such products in unexpected quarters.

A highly useful yet rather curious example of mold utilization which has been practiced for untold years is of general interest, *i.e.*, the part these organisms play in the ripening of soft cheeses such as Brie, Camembert, Stilton, Roquefort, and Gorgonzola. Port du Salut, originated by the Trappist monks in France, later produced in Spain and, with the expulsion of the order, brought to the wilds of Canada, belongs to this group. In most of these the molds and bacteria work in a sort of partnership, the bacteria first producing a mild acidity in the curd which then becomes a favorable breeding ground for molds. The brunt of the work falls on the fungi which, because of their great ability to produce those interesting digestive juices or secretions known as enzymes, can partially transform the raw casein of milk to nutritious and highly satisfactory cleavage products. Cheese is, therefore, to a large extent a predigested food, with characteristic tastes and odors.

One of the technical uses of mold fungi depends upon the great ability of these organisms to secrete enzymes of considerable variety and quantity. The commercial product, Takadiastase, which (Concluded on page 244)



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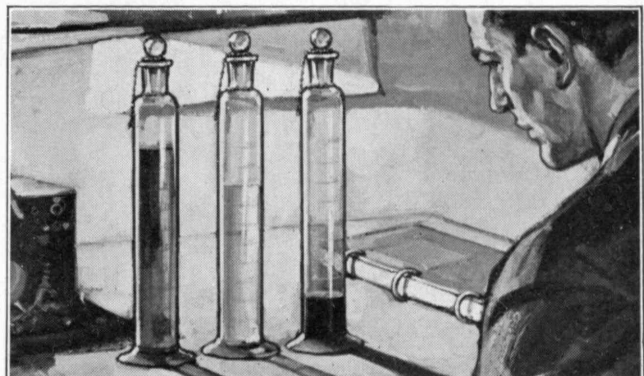
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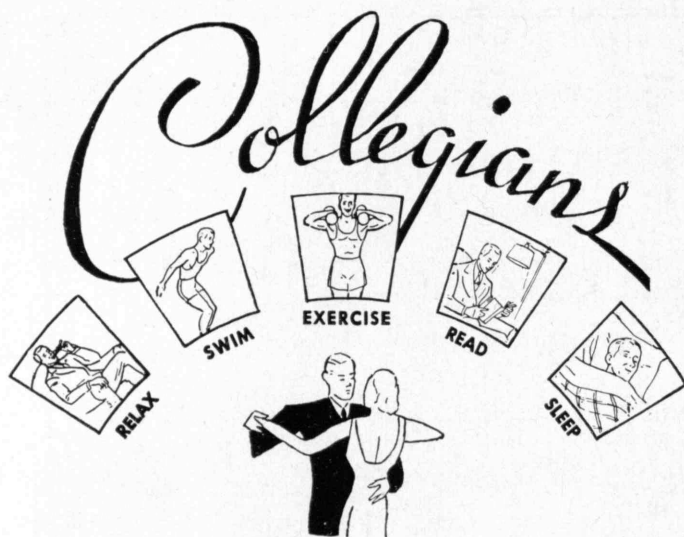
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## PUTTING GERMS TO WORK

(Concluded from page 242)

has been on the market for many years, is such a material, first derived from the fungus *Aspergillus oryzae* by the Japanese mycologist, Takamine. Its qualities and powers are essentially the same as malt diastase from sprouting barley, but it can be prepared with greater ease and economy.

Among other uses of molds which may become of technical significance, one is in the manufacture of kojic acid. Although of no apparent use at present, the acid possesses a gamma-pyrone nucleus which is difficult of synthesis but may conceivably be important in the future. The same statement could have been made a few years ago with reference to gluconic acid—now produced by molds as well as by bacteria. The calcium salt of this acid is now used in medicine as a means of introducing calcium into the body.

Some molds are also known to be capable of producing ergosterol, which, by irradiation, can be transformed into Vitamin D. This is already being done commercially in this country. Even more curious is the fact that some species of *Helminthosporium* can produce pigments which are actually anthraquinone dyes. These are now being developed commercially in Great Britain, as production by mold growth is cheaper than by organic synthesis.

This paper has touched upon some of the ways of harnessing microbes for man's service, which have taken place especially in our own lifetimes. Some of them are of ancient practice; others are still in the early stages of utility. There are numerous others, possibly less promising and less exciting, which might be described, for we are apparently at the beginning of an era of microbiological development which may be of vast interest. What has already taken place indicates clearly that industrial microbiology is a growing branch of science and an interesting one. What we may expect in the next quarter century is a field for scientific use of the imagination and theoretical speculation, but most of all for originality and accuracy in pioneering research.

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## SCRIMSHAW—THE PERFECT HOBBY

(Continued from page 224)

I think of at the moment: a cane made up of sections of ivory (see page 224), with a snake winding along its total length; and a miniature wheelbarrow (page 221), finely proportioned.

The second material of scrimshaw, the lower jawbone of the sperm whale, was nearer wood than ivory. It had a definite grain, but a grain without any particular beauty. Its chief advantages were that it could be more easily worked than the tooth — although nowhere near so delicately — and that it could be obtained in large pieces. The jawbone came in two cuts, as it were: the long, straight shank that held the teeth, and the pan at the joint, from which a broad rectangular slab could be obtained. Canes, yardsticks, boxes, and busks could readily be made out of jawbone, and it was generally used for the latticework of the swifts, or yarn reels.

Whalebone, the third important scrimshaw material, was of ugly brown color. Its flexibility — the property that made it valuable commercially for ladies' stays, umbrella ribs, and whips — made it useful for certain purposes in scrimshaw. I have seen canes wrapped spirally with whalebone about half an inch wide. Occasionally whalebone was used to good purpose as inlay. The most common use of whalebone in scrimshaw was for busks; these the whaleman often engraved, but

though the designs are generally interesting, the artistic effect is not fortunate.

Scrimshaw would not have flourished so widely and so passionately (I do not believe the latter is too strong a word) had it not been for the triumph inherent in the art. The teeth, the busks, the jagging wheels were trophies, won in great peril and enthusiasm. The scrimshaw artist had known the actual whale which had furnished his material. He had felt and smelled the vapor of its spouting; perhaps he had felt the swish of the broad flukes, or seen the animal bite a boat in two, or been spattered with hot blood in the death flurry. There were countless bitter, elemental fights between man and beast in the desolate wastes of the ocean; these were flashes of glory in a dreary existence.

Scrimshaw, then, was inevitable, for the perfect material was at hand — perfect for the zeal of the craftsman, perfect for the pride of the whale hunter. And time was at hand, and loneliness, and ennui, and the instinctive yearning for beauty. There is still another phase to scrimshaw, of which I am reminded by a remark heard recently concerning the desirability of cultivating hobbies of social nature. Now scrimshaw, like wood carving or etching, is intrinsically a solitary pursuit. Yet it would hardly have flourished without its social setting. A group created it, and a group, through emulation, perfected it. There were no schools or textbooks, no Aristotles or Ruskins; a definite technique was developed through (Concluded on page 246)

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## SCRIMSHAW—THE PERFECT HOBBY

(Concluded from page 245)

intercourse alone. The scrimshaw of an individual voyage would often have an individual stamp—but only in respect to the designs chosen or the type of article most generally attempted—and this would be due to the influence of some natural leader. The best glimpse we can get of scrimshaw, I imagine, is in picturing some young green hand scratching crudely on a scrap of bone and at the same time watching with anticipation an old veteran of the sea putting the flutings on a jaggling wheel. There were some rare ships on which the captains forbade scrimshaw as a trivial pursuit damaging to discipline. But on the whole, the making of scrimshaw was common to cabin, steerage, and forecastle. Of course there must have been many seamen who would not even attempt the art, like the grouch who wrote in his journal: "Nothing in sight and no signs of ever seeing any sperm whales around here the old man and the mate devote their time a Schrimshorning that is all they think of."

Just when and how scrimshaw came into being no one seems to know. My guess is that it must have started after 1712, the year that the Nantucketers discovered the sperm whale. I feel that the large and beautiful teeth of that species would have aroused the artistic urge in some of the islanders. If a piece of ivory is in one's possession, especially as a trophy, what would be more natural than the desire to smooth it down, to beautify it? But there is an even chance that I am wrong and that the first scrimshaw was done by some swain who, in a moment of frivolity or sentiment, took out his jackknife and carved a heart into a whalebone

busk. In either event, the work would have to be called "land scrimshaw," for the long voyages, so essential to the real scrimshaw, did not begin till mid-century. Crèvecoeur wrote in 1782 of the numerous trinkets he had seen in Nantucket, all carved by the whalemén during the leisure of the voyages. The earliest reference to the art I have found in a logbook is of 1826: "All hands employed Scrimshonting." Between the two dates last mentioned, the American whalemén had rounded the Horn and had mingled with the natives of the South Sea Islands. How much the Yankee scrimshaw owes to the patient art of Polynesia, one doesn't know. In subject matter it seems to owe nothing; and in technique probably little. But when one considers some intricate Polynesian carving, done in the hardest of woods, without the aid of metal and with a bit of shell for a knife, one supposes that the whalemén might well have found a new patience, a new ideal, from those brown-skinned masters of leisure.

The point cannot be settled, for the objects seen by Crèvecoeur are not to be collected, and, so far as we know, all existing scrimshaw belongs to the post-Polynesian years. Yet it would not be surprising if some one traced the word "scrimshaw," a word that has still escaped capture, to a South Sea origin.



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# TECHNOLOGY MEN IN ACTION

CHECK LIST OF THE ACTIVITIES AND ACHIEVEMENTS OF M.I.T. ALUMNI, OFFICERS, AND STUDENTS

## *With Interest We Report*

¶ That CADWALLADER WASHBURN '93 held an exhibit of dry points, portraits and landscapes, during the first week of January, Doll and Richards, Boston.

¶ That ALFRED P. SLOAN, JR., '95, chairman of the board of General Motors Corporation, made a contribution of twenty-five thousand dollars to the Automotive Safety Foundation for promoting progress in the safe use of streets and highways.

¶ That FRANK B. JEWETT '03, Vice-President of the American Telephone and Telegraph Company, received the Washington Award for 1938 for merit in promoting public good, presented in January by a committee representing five national engineering societies. Mr. Jewett has been re-elected president of the New York Museum of Science and Industry.

¶ That ELMER A. HOLBROOK '04, dean of the School of Engineering, University of Pittsburgh, feels that "the only limitation to women's studying engineering is their own inclination."

¶ That THOMAS C. DESMOND '09, state senator in New York, proposed a bill requiring well-to-do inmates serving terms for felony in Sing Sing Prison to pay board during their incarceration.

¶ That SAMUEL V. CHAMBERLAIN '18 held an exhibit of etchings at the art gallery of the Boston City Club in January.

¶ That ROBERT P. SHAW '23 was appointed director of the New York Museum of Science and Industry, in January.

¶ That WARREN J. MEAD, Professor of Geology, JOSEPH A. CUSHMAN, former member of the Geology Department, and NORMAN L. BOWEN '12 were three of the five vice-presidents of the Geological Society of America elected in late December.

## *Written*

¶ By H. E. BEEBE '10, "The Hardest Perennial," *The Dakota Farmer*, July 31. This article gives directions for building a lily pool — "ideas that can be worked out in the less moist sections of the Dakotas with a strong back, weak or better mind and five sacks of cement."

¶ By THOMAS R. CAMP '25, "Economic Pipe Sizes for Water Distribution Systems," *Proceedings* of the American Society of Civil Engineers, December. This paper takes the step from the determination of the economic size of a single pipe line to the determination of economic pipe sizes for whole water-distribution systems.

¶ By CARL BRIDENBAUGH, Staff, "Cities in the Wilderness: The First Century of Urban Life in America: 1625-1742," Ronald Press Company. This is the book for which Professor Bridenbaugh received the Justin Winsor Prize mentioned in our February issue. The book deals with the development of early Boston, Newport (R. I.), Philadelphia, and Charleston (S. C.) and reveals for the first time that American Colonial cities attained an economic and cultural growth that paralleled the development of contemporary European cities. Especial attention is given to architectural and engineering developments in the towns, such as the excellent achievements of the townsmen in bridge and highway engineering and the unusual size of wharves and docks.

¶ By JOHNSON O'CONNOR, Former Staff, "English Vocabulary Builder," Human Engineering Laboratory. This book was compiled after a study of tests administered at Stevens Institute of Technology to determine whether or not there exists a relationship between success and vocabulary. The author has listed over eleven hundred words, complete with their definitions, in order of familiarity. This order is based on the finding that "vocabulary advances with an almost unbroken front. The words at one's command are not a miscellany gathered from hither and yon. With a few exceptions they are all of the words in the dictionary up to those of an order of difficulty at which one's vocabulary stops, and almost no words beyond." Among the test administrators whose work preceded the making of this book was JEROME E. SALNY '37.

## *Lectures*

¶ By CLAIR E. TURNER '17, Professor of Biology and Public Health, before the Foreign Affairs School of the

Massachusetts League of Women Voters, "Food — An International Problem," January 26.

¶ By ERIC F. HODGINS '22, Publisher of *Fortune*, before the Advertising Club of Boston, on characteristics of American business, January 18. Mr. Hodgins accentuated "the tremendous importance of journalism in this confused and distracted" world. ROBERT E. ROGERS, Professor of English, introduced Mr. Hodgins at this meeting.

¶ By DAVID LASSER '24, for three years national President of the Workers Alliance of America, before the Youth Forum on the problem of unemployment as it threatens the security of our present-day democratic form of government, at Ford Hall, Boston, January 19.

¶ By HENRY L. SEAVER, Professor of History in the School of Architecture, before the Architectural Club of Boston, "Portraits and Portraiture Through the Ages," January 12.

## DEATHS

*\*Mentioned in class notes.*

¶ WILLIAM H. PICKERING '79, January 17.

¶ JENNIE MARIE SHELDON '81 (Mrs. George), January 15.

¶ CHARLES A. FRENCH '82, January 17.

¶ HARRY W. TYLER '84, February 3.

¶ HENRY L. JOHNSON '92, December 10.

¶ JAMES S. WADSWORTH '93, November 27.\*

¶ JAMES D. LITTLEFIELD '94, March, 1937.

¶ CHARLES KING '96, January 22.\*

¶ CLARENDON NICKERSON '97, November 25.

¶ ROBERT B. GREGSON '06, December 17.\*

¶ GEORGE B. HUTCHINGS, JR., '18, November 15.

¶ RICHARD S. EVERIT '19, January 22.

¶ ISRAEL B. LEVINE '22, September 12.

¶ JOHN F. DUFFY '24, January 19.\*

¶ ROLAND V. CROWLEY '27, January 14.

¶ GEORGE E. MUNROE '27, November 23.

¶ CHARLES BUCHANAN '34, January 31.

¶ GEORGE WILTON FIELD, Former Staff, January 19.

# NEWS FROM THE CLUBS AND CLASSES

## CLUB NOTES

### *M.I.T. Club of Akron*

On December 10 our Club was visited by B. Alden Thresher '20 of the Institute. At a dinner meeting at Kaase's dining room, Professor Thresher gave a very comprehensive and entertaining talk, bringing us up to date in the affairs of the Institute. The attendance was smaller than usual because of conflicts with several other events that evening, including the annual show of the University Club and the semiannual dance of the local section of the American Chemical Society. Nevertheless, the 25 who attended were all intensely interested in the subject and entered into a lively round-table discussion following the talk. We all felt that Professor Thresher had brought us a lot closer to the Institute.

At our January 18 meeting, 55 members gathered for a turkey dinner at the Akron Liedertafel. A. J. Gracia '28 presided at the meeting and told us of his visit last month with the New York group. R. P. Dinsmore '14, Honorary Secretary of this district, reported on the progress of the Alumni Fund. We were pleased to hear that, at the last accounting, our own district was among the leaders. Mr. Dinsmore stressed the importance of having every Alumnus represented on the list, regardless of the size of his contribution, and expressed the hope that through efforts along these lines our position could be improved further before the next accounting. The speaker at this meeting was T. N. Stapleton of the Federal Bureau of Investigation. He outlined the various crime-detecting agencies of the government and discussed the functions and methods of his own department in particular. In listening to his account of solving what seemed to be hopeless tangles, we could not resist a feeling of admiration for the G-men and, at the same time, a little sympathy for the "rats." Mr. Stapleton admitted that this sympathy was quite natural and was a frequent public reaction.

Among those attending infrequently or for the first time, the Club was pleased to welcome W. W. Eaton '17 of Canton, W. F. Dewey '20 and J. H. Holton '17, both of Massillon, and A. K. Whitaker '23 of Akron. — JOHN H. FIELDING '25, Secretary, 533 Letchworth Drive, Akron, Ohio.

### *Technology Club of Northern Texas*

The Club held its annual meeting and dinner at the Dallas Athletic Club, Monday evening, January 10. B. Alden Thresher '20, Director of Admissions for

the Institute, was the honored guest and principal speaker of the evening, and several heads of local preparatory schools were present.

For the benefit of those who had not been able to attend the Technology reunions or who were not in touch with the present activities of the Institute, Professor Thresher gave a very interesting talk on current activities at Technology and the new policy with reference to admission of students. He outlined the expansion program inaugurated by Karl T. Compton, President, which included the addition of several new courses, the bringing to Technology of outstanding men to strengthen the Faculty, more thorough and extensive coöperation with industry, and the provision for additional recreational and other facilities for students. It was pointed out that there has been a consistent demand on the part of industry for well-grounded students with some practical experience in the particular line of industry in which they expect to work; along this line, certain industries have coöperated with the Institute in giving employment to students during the summer and, in some courses, for an entire year after the third year at Technology, the students returning to the Institute for their fourth year, broadened by practical work and experience. It was also pointed out that the Institute does a great deal of successful research work in coöperation with industry.

A report was given on the policy of selective admission of new students, showing that over 60 per cent of new student registration for the current year was outside of New England. This distribution has been an objective of the Institute for some time. Through this admission plan, it is felt that the Institute can secure the best students from the entire country and, thereby, not only help itself but spread its influence. Out of an application list of approximately 1,500 students, 605 were admitted to the Institute this past fall. Honorary Secretaries of the Institute all over the country have coöperated fully with the Director of Admissions in selection of students, through reports on personal interviews. Although tuition has been increased to \$600, through the aid of scholarships and student loans the cost of education at Technology is still within the reach of deserving students — especially those who are qualified for the work and eager to undertake it.

An interesting discussion concerning the present activities of the Institute followed Professor Thresher's talk. Particular mention was made of the good work being done by Frank F. Bell '10, Honorary Secretary for the Dallas district. Mr. Bell has given a great deal of time interviewing students, principals, and headmasters of the local schools. —

All of the officers of the Club were re-elected for the coming year: George R. Prout '22, President; Count B. Capps '20, Vice-President; Erasmus G. Senter, Jr., '17, Secretary; Olin W. Scurlock '21, Peyton G. Cooper '34, and Samuel W. Marshall, Jr., '28, Board of Governors.

The following Alumni were present at the meeting: Lloyd M. Long '23, L. Munger Means '18, Olin W. Scurlock '21, Albert W. Nichols '04, John P. Minton '12, James P. Barnes '05, William P. Bentley '04, Francis A. Moore '11, William C. Walcutt '33, Ballard Y. Burgher '09, Frank F. Bell '10, George R. Prout '22, Mark Lemmon '16, Donald D. Williamson '22, Herbert H. Sutton '09, C. Frank Skinner '23, Roland F. Beers '28, Robert U. Berry '27, Lester A. Russell '04, Donald C. Walmsley '25, Newman B. Gregory '09, Fred R. Gamble '24, and Erasmus G. Senter, Jr., '17. In addition to the members, the following guests were present: B. Alden Thresher '20, Director of Admissions, M.I.T.; K. M. Bouve of Texas Country Day School, Dallas; and S. M. Davis of Terrell Preparatory School and Junior College, Dallas. — E. G. SENTER, JR., '17, Secretary, 210 Construction Building, Dallas, Texas.

### *Indiana Association of the M.I.T.*

The meeting of the American Association for the Advancement of Science, held in December at Indianapolis, brought to our city a great aggregation of scientific men, not the least of whom were several of the M.I.T. Faculty, as well as President Compton. Profiting by the occasion, our Association was able to call a meeting for December 30 in honor of President Compton. Being Thursday, cooks' night out, invitation was extended to the ladies to be present, with the result that about one-third of the attendance was of the fair sex.

The meeting was held at the Indianapolis Athletic Club, and opportunity was afforded for mutual introductions and hand shaking before the group, approximately 40 strong, advanced to the festive board to enjoy a good, old-fashioned dinner. As the terms of the present officers expired with the declining year, the new President of the Association, Batist Hauelsen '23, and the incoming Secretary, Richard L. Berry '30, responded to a call to rise (and smile). Our oldest member in point of Class — W. M. Taylor '86 — and three other charter members — Stickney, Wall, and Wayne, all '96 — also similarly responded to call.

Dr. Compton was then introduced and talked upon many subjects of great interest, all related to the Institute. Not the least interesting was his narration of the incidents and events leading up to



the presenting of the Theobald Smith Award in Medicine to R. D. Evans, Assistant Professor of Physics at the Institute, for outstanding medical advance in the adaptation of his radium indicator to the detection and cure of radium poisoning. Wind tunnel, x-ray tubes, high-voltage laboratory, dormitory plans, new buildings, and recreational facilities were all most interestingly covered, the whole capped off with a viewing of slides of the various subjects.

As the time for adjournment approached, A. A. Potter '03, dean of engineering at Purdue University, gave a most interesting appreciation of our honored guest, based upon personal contacts with him in the course of various committee and other work in which they had both been engaged, and he assured Dr. Compton of our hearty support to the fullest possible extent. This was seconded by all. The meeting adjourned with all expressing their personal appreciation for this pleasant and informative event. — RICHARD L. BERRY '30, Secretary, 2403 North Delaware Street, Indianapolis, Ind.

### *Technology Club of Southern California*

A regular meeting of the Alumni of the southern California region took place at the University Club in Los Angeles on January 18. William H. Robinson, Jr., '24, presided. Forty-three members were present and listened to a short and stimulating talk by Vannevar Bush '16 on alumni and Institute relationships. Following this, Dean Bush answered many questions from the group as to present practices at Tech, among which were the patent agreement with staff members, textile research, and mathematical analyzing machinery. Dr. Bush also told of his reason for coming to California at this time, which is to be of service to Caltech in designing automatic controlling mechanisms for the 200-inch telescope soon to be erected on Mount Palomar. Unfortunately no Caltech men were present, so this situation was not enjoyed to the fullest. — RALPH B. ATKINSON '29, Secretary, 6706 Santa Monica Boulevard, Los Angeles, Calif.

### *M.I.T. Club of Northern New Jersey*

Well, this is the midseason lull for these club notes: the February 9 smoker is not due for reporting until the next Review, and it would be premature to indicate here more than the solitary fact that the usual banquet will be held in April. Nonetheless, the club activities persist behind the scenes: Periodic meetings of the executive and other committees are concerned with plans such as that to promote a successful Alumni Fund Drive; that to devise a more formal organization for the Club; that to encourage more regional meetings to be held outside the city of Newark; that to create a workable scheme of employment listing for members' benefit; and so on.

One important seasonal activity now holding sway is the visiting by designated alumni representatives and other club members at college nights held customarily, as the occasions arise, at various high schools, for the purpose of informing the boys and girls about Technology life and study. This supplements the established coöperation of this group in aiding the Admissions Office in choice or elimination of applicants under the restricted enrollment now in force. Likewise, in the grand manner, the Club's scholarship committee, ably directed by W. I. McNeill '17, is putting in much time investigating candidates for freshman competitive and regional scholarships, eventually to be awarded for this year. The remainder of this committee includes C. A. Clarke '21, A. I. Phillips, Jr., '10, J. P. Maxfield '10, and John Mills '09. These managers are supported by the aforementioned alumni representatives, 26 of whom have been appointed by the Institute as honorary secretaries for five-year terms, each in his prescribed local territory. Candidates for scholarships are interviewed and reported upon as addenda to the school principal's recommendation and other references on file. Then, in late April or May, a series of conferences, with and without the candidates present, are held at Newark. The Dean or Assistant Dean sits in while the wheat is sifted from the chaff; the awards are made later from the Dean's Office. Last year about 20 freshmen grants from \$100 to \$300 were made, in addition to the northern New Jersey regional.

The bridge team is in fighting trim for the annual set-to with the New York club. Someday, if the bridge bug bites hard enough, there may be, as Cac Clarke suggests, an intercity league including Bridgeport, Worcester, and such! It is an open secret that locally the Alumni Fund Drive is in an intensive stage, recession or no recession. Let it be here prayed, therefore, that each member will send his return card (if not already forwarded to Cambridge) in order that the reasonably won prestige of this division may not be diminished.

Second Thursday luncheons are still in force at the Newark Athletic Club. — A. RAYMOND BROOKS '17, Secretary, Wayside, Brantwood, Short Hills, N. J. FREEMAN B. HUDSON '34, Assistant Secretary, Colgate-Palmolive-Peet Company, 105 Hudson Street, Jersey City, N. J.

### *M.I.T. Club of Western Pennsylvania*

On December 30 the Club held a luncheon at the Hotel Pittsburgher in honor of the western Pennsylvania section undergraduates who were at home during Christmas vacation. Eleven undergraduates were present, accompanied by the fathers of three. President Helfman '24, after a short talk, introduced the other speakers. W. E. R. Covell '23, F. J. Chesterman '05, P. V. Farragher, Thomas Spooner '09, and H. M. Priest '12 spoke, with the object of giving the undergraduates some idea of the type of

work now being done by Tech men in their own organizations: the Duquesne Light Company, the United States Engineers, the Bell Telephone Company, the Aluminum Company, the Westinghouse Electric and Manufacturing Company, and the Carnegie-Illinois Steel Corporation. This luncheon meeting was highly enjoyed by the undergraduates, as well as the graduate members of the Club. — JOSEPH L. THISTLE '32, Secretary, Burrell Technical Supply Company, 1942 Fifth Avenue, Pittsburgh, Pa. WARREN D. SMITH '27, Assistant Secretary, Koppers United Company, Room 533, Koppers Building, Pittsburgh, Pa.

### *M.I.T. Club of Northern California*

Uncle Horace Ford, Treasurer of the M.I.T., paid us the honor of a visit at luncheon at the University Club on Friday, December 17. Mr. Ford mentioned the proposed recreational and athletic center to be constructed at the Institute, and drew for us a verbal picture of the new buildings, supplemented by lantern slides, illustrating the buildings now under construction, as well as those contemplated. We were glad to have Mr. Ford with us. — Remember the regular informal Tuesday luncheons every week at the Engineers' Club, 206 Sansome Street, San Francisco; lunch 60 and 75 cents. — SCOTT C. RETHORST '36, Secretary, Columbia Steel Company, Russ Building, San Francisco, Calif.

### *Technology Club of Central Florida*

President Mansfield '83 arranged a meeting of the Club on January 20 at the Jungle Beach Club just north of Maderia Beach. A. W. Higgins '01, President of the Florida Power Corporation in St. Petersburg, handled the details of arrangements with the Jungle Beach Club, and the meeting was a most enjoyable one. — MALCOLM R. MCKINLEY '19, Secretary, Tampa Electric Company, Tampa, Fla.

### *Washington Society of the M.I.T.*

The Society held a special dinner meeting at the Cosmos Club, Friday, January 21. Before dinner the sound motion picture, "The Building of Boulder Dam," was shown. Both John C. Page, commissioner of reclamation, and Wesley R. Nelson, chief of the engineering division, Bureau of Reclamation, who were in charge of work at Boulder Dam, were present at the meeting and responded to questions following the showing of the picture. An interesting comparison was made between Boulder Dam and Grand Coulee Dam. The former required 3,250,330 cubic yards of concrete, while Grand Coulee, it is estimated, will require over 11,000,000 cubic yards.

After a most enjoyable dinner, the meeting was adjourned by our honored late President, Harry W. Tyler '84. The fol-



lowing Alumni and guests attended the meeting: George D. Mock '28, Joseph Low '18, Joseph Y. Houghton '26, Joseph A. Lockie (guest), William H. McAlpine '96, Thomas A. Middlebrooks '30, John A. Plugge '29, A. Appel (guest), Ludwig C. Hoffmann '29, Albert F. Bird '30, Harry A. Whiton '01, W. Lorrain Cook '03, Frederick W. Amadon '07, Edwin W. James '07, Walter I. Swanton '93, Horace R. Byers '32, Karl E. Schoenherr '22, William K. MacMahon '22, Allen Addicks '22, Frank L. Ahern '14, Alfred E. Hanson '14, William E. Lutz '18, Walter W. Zapolski '23, Edwin J. Grayson '17, H. C. Allen (guest), Amasa M. Holcombe '04, Julius E. Nolte '98, Joseph C. Dort '09, Charles P. Kerr '11, John C. Damon '05, George W. Stose '93, Merritt P. Smith '19, Anderson M. Gray (guest), Harry B. Swett '25, Charles H. Godbold '98, George W. Stone '89, Frederic W. Southworth '00, Charles H. Stratton '00, G. Donald Freeman '32, Gordon R. Williams '29, Fred N. Ricks '29, William D. Rowe '24, Lawrence W. Conant '21, Allen Pope '07, Edward C. Potter '80, Archie S. Buyers '23, Charles G. Abbot '94, Harry W. Tyler '84, John C. Page (guest), Holland L. Robb '21, F. J. Killilea (guest), Wesley R. Nelson (guest). — HENRY D. RANDALL, JR., '31, *Secretary*, 119 South Chelsea Lane, Bethesda, Md. LAWRENCE W. CONANT '21, *Review Secretary*, 3008 Ordway Street, Northwest, Washington, D. C.

## CLASS NOTES

1888

Your committee in charge of the celebration of the 50th anniversary of the departure of the Class of '88 from the Institute is now hard at work on all the details of the plans that have to be made in order to insure the success of the most momentous event of our career as a Class.

Although we had a good crowd at our 25th at Wianno in 1913, including our 65 guests from the Class of '13, we hope and expect at our 50th a larger percentage of those now available than we had of those available 25 years ago. One reason for this hope is the considerable number of letters received by your Secretary expressing the writers' regret for their absence from our 40th and 45th but stating that they could be counted on for our 50th.

Our reunion committee consists of the following: President Webster, Chairman, Ben Buttolph, Fred Ellis, John Runkle, Sanford Thompson, Fred Wood, and the Secretary. Already five different places or hotels have been suggested for our consideration, and the consensus of opinion seems to point to a meeting place near Boston, near the shore, near a golf course, and near rocks or cliffs for our quinquennial clambake. Our class dinner will, of course, be the high spot of the celebration. We are now planning on June 3, 4, and 5 for the reunion so as to make it easy to stay over for Alumni

Day (which is '38's Class Day) on June 6, and take part in the exercises, which include a talk to the graduating Class by an '88 man to be selected by the Alumni Day Committee.

Before you read these notes you will have received circular letter Number 1, which was sent to the 91 names and addresses on our class roster, which shows classmates scattered all over the United States and two foreign countries. The Secretary considers it his duty to sell this semicentennial reunion to all classmates in the West and Middle West who perhaps may be wavering a little before making the final decision to come to the seashore near Boston in June to see their classmates, enjoy motor trips along the coast, eat clams prepared by Charlie Faunce — our New Bedford chef and oven builder — play or watch golf, take a motorboat trip, and enjoy a class dinner (after which President-Elect Webster will be inducted into office), inspect the new buildings and equipment at Technology, and enjoy hearing a classmate tell the graduating class what is in store for them. This is only the beginning of the good times being prepared for '88 men who have withstood the buffeting of the world for half a century since leaving dear old M.I.T. — The final reunion committee meeting will be held at the Union Club in Boston on April 18 to settle all details of the celebration.

Arthur Williams of Newton Highlands, in a recent letter, says: "I hope my vote is not too late to add to the unanimous vote for Ned Webster for president, that you announced in *The Review*." — Joseph Cooke Smith, our farthest-from-Boston classmate, who has been away from the United States of America for the last 30 years, mostly in Switzerland, replies to our special invitation as follows: "It was a great pleasure to get your cordial letter of invitation to the 50th anniversary of our graduation. Nothing would give me greater pleasure than to be present at this celebration and to see once more my classmates. For the last six years, however, I have been unable to travel and, greatly to my regret, therefore, I will not be able to attend this anniversary. Please give my heartiest greetings to those of my classmates who remember me. Good luck with the weather." We are very sorry that Smith cannot come, but we hope Manuel de Ajuria of Havana, Cuba, can be present. — BERTRAND R. T. COLLINS, *Secretary*, 407 Warren Crescent, Norfolk, Va.

1890

Notice has just come from the Alumni Office of the death of Elwood A. Emery, who was graduated with us from Course IV. He was born in Fairfield, Maine, in 1865 and died on November 15, 1936. The Secretary has very little information about him and has been unable to obtain an obituary notice. The books show that in 1896 he became director of vocal culture at Iowa College and in 1904 went to Chicago as a teacher of vocal music. Apparently he followed this line up to the time of his death. — *The Mining*

*Journal*, published at Phoenix, Ariz., had, in the issue for December 15, an article on "Erratic Assay Results on Gold Ores," written by Wallace MacGregor before his death on September 19.

*Civil Engineering* for January has the following concerning Rice: "A bronze tablet in memory of Calvin W. Rice, long a leader in engineering thought and practice, has been prepared by the United Engineering Trustees, 'in appreciation of a life devoted to the advancement of the profession of engineering and of his active part in obtaining from Andrew Carnegie the gift of the Engineering Societies Building.' Unveiling of this memorial was a feature of 'Honors Night' at the recent annual meeting of the American Society of Mechanical Engineers. Mr. Rice had served as secretary of that society from 1906 until his death in 1934. As a rule of the Trustees prevents the placing of memorials in the public halls of the building within five years of the death of the person so honored, the tablet will remain for the present in the custody of the American Society of Mechanical Engineers."

The town of Belmont adopted resolutions on the death of Kendall, as did the trustees of the Belmont Savings Bank and other institutions with which he was connected. His portrait is to be hung in the bank. — Bertram Lenfest, who has retired from teaching, has taken a trip through the Canal and is spending the winter on the Pacific Coast. — It is a pleasure to hear that Harry Spaulding, who has been in poor health for several years, is much improved.

Burdett Moody, who is business agent of the Los Angeles Bureau of Power and Light, wrote as follows to Sherman in January when he sent his contribution for the gymnasium: "While I have not had the opportunity to participate in reunions of the Class, and in fact have had but little opportunity to meet many of them, I have kept alive the very many and lively influences for which members of the Class were responsible. George Gilmore used to be most pleasurable in his many incidental visits to my office while in Los Angeles, and his death came with more than usual shock. I saw by the last alumni *Review* that two of the members of the Class had received diplomas certifying to life membership in the American Society of Civil Engineers. I should have been included in that list: I received mine, although it is dated back in 1932. While it is true I have in late years devoted myself more to the economic and business side of engineering than to the technical side, I certainly have not lost interest in civil engineering topics. And, by the way, I think I am the oldest member of the American Society in southern California, as I am, I think, the oldest Alumnus of the Institute here." After commenting on the recent advantageous placing of a large amount of Los Angeles revenue bonds, he adds: "It has given me more than usual satisfaction to have spent so long a time in a publicly owned institution that has won the high regard of even those whose philosophy runs

1890 Continued

toward private enterprise. Best wishes to yourself and to all members of the Class whom you meet and whom I hold in such affectionate regard."

In addition to Hazard and Noyes, whose names were reported in the January Review, a number of other '90 men have been recipients of life membership certificates in the American Society of Civil Engineers. The list includes, besides Moody, also Babb, Brownell, Carmalt, Chase, Poland, Storrow, and Walker. Sherman and Burley have been notified that this honor will be conferred on them this year. — Sherman, who was elected to fill out Kendall's unexpired term as president of the Belmont Savings Bank, has now been elected to that office for the ensuing year. The Secretary is indebted to him for much of the above information and also for acting as the '90 representative in the appeal for funds for the much needed new Technology gymnasium and other facilities. The returns are disappointing so far, but those of us who have our own businesses to keep going feel obliged to wait until we can see more clearly what conditions we must face during the coming year. However, let us do what we can, as soon as possible, and plan to follow with a larger contribution later. — GEORGE A. PACKARD, *Secretary*, 50 Congress Street, Boston, Mass. HARRY M. GOODWIN, *Assistant Secretary*, Room 4-112, M.I.T., Cambridge, Mass.

## 1892

The members of the Class will be grieved by the news of the death, on December 26, of Ross F. Tucker, 69, Head of the Course in Building Engineering and Construction at the Institute and one of the country's leading construction engineers. His home was in Great Neck, L. I. He was a pioneer in the development of concrete as a building material, developed a vault-lighting system now used by New York subways, and supervised huge Wartime building projects for the government. When only a year out of college, he founded the Aberthaw Company of Boston, large contracting firm. He supervised much construction work about New York City and was a leader in promoting labor arbitration in the city's building-trades disputes.

Professor Tucker was born in Sacramento, Calif., in 1868, of New England ancestry. His father, Samuel F. Tucker, served with General Sheridan as a captain in the Civil War and was widely known in military and contracting fields for the construction of fortifications about San Francisco. Professor Tucker was graduated from M.I.T. in 1892. He soon gained distinction as a construction engineer in and about New York, particularly for his valuable work with concrete. Another invention he helped to develop was the familiar glass-insert sidewalk. He became a member of the Building Trades Employers Association in New York and served as chairman of its board of governors. In this position he was instrumental in obtaining arbitration in all labor disputes in the vast New

York building industry. He later was made chairman of the executive committee of the general arbitration board for the industry.

During the World War, Professor Tucker had charge of many notable building projects for the government, supervised installation of water-supply systems at military camps, and aided in building factories to house rapidly mobilized War industries. In recognition of his service, he was awarded a certificate of merit by the Secretary of War.

He was called to M.I.T. in 1926 to organize the Course that he headed at his death. Three years ago, addressing the Massachusetts Federation of Planning Boards, he spoke in favor of Federal subsidy in clearing city slums. Earlier, before the Building Officials' Conference of America, he had offered his theory that the automobile, the shortened work day, and the low-cost house would soon drain our cities of a large portion of their populations. His design of inexpensive fabricated homes, he believed, would hasten that end. Professor Tucker was a member of the American Society of Civil Engineers, the Mechanics' Institute, and a past president of the Master's League of Cement Workers. He leaves his widow and a son, Gordon E. Tucker, also an engineer.

Henry J. Schlacks, for many years practicing architect in Chicago, died on January 6. No other particulars are available, but the members of the Class will remember the account of his professional activities as published in the class news in the June issue of *The Review*, in which mention was made of a number of outstanding examples of his work, chiefly in design of churches: St. Joan of Arc, Indianapolis; St. Mary's of the Lake, St. Ignatius, and St. Ita's, all of Chicago; Church of the Holy Name, Topeka, Kansas; and St. Mark's of Cincinnati. — JOHN W. HALL, *Secretary*, 8 Hillside Street, Roxbury, Mass. W. SPENCER HUTCHINSON, *Assistant Secretary*, Room 8-219, M.I.T., Cambridge, Mass.

## 1893

The 45th class reunion is scheduled for Saturday and Sunday, June 4 and 5, following which the Class will participate in Alumni Day at the Institute on Monday, June 6. Information as to place and detailed arrangements will be announced later in notices mailed to all members of the Class.

Heiichiro Maki, after an interval of several years, has recently been heard from. He sends his new address, which is 220 Kamiishiwara, Chofu, Kitatamagun, Tokyo-fu, Japan. Maki will be remembered as the brilliant young Japanese who, after a few months' preparatory-school training in this country learning the English language, entered Technology with the Class, took honors in all his electrical engineering subjects, and was graduated as one of our most popular members. Returning home upon graduation, he was a pioneer electrical engineer in Japan and built many electric railway, mining, and other developments in that

country and in Korea (now Chosen). He achieved prominence in his profession and some years ago was created Baron Maki. He and Baroness Maki have two children, a daughter born in 1897 and a son in 1917. Of the son, Maki wrote for the 30th anniversary classbook in 1923: "I consider him very much brighter than his father, and he enters Tech in the year of his father's 45th class reunion. My wife and I have already commenced making some preparations for our 'gold' wedding dinner to be held in Boston when he graduates." (Evidently Maki was a bit confused as to dates. Certainly he apparently was unmarried in 1892 while a student at Tech. — Secretary.) Farwell Bemis on two of his world tours, Henry Morss, and Howard Gilmore, all visited Maki in Japan. The late Mrs. Plumer, "the Secretary's Secretary," who edited and produced our memorable 30th anniversary classbook, was most hospitably entertained by Baron and Baroness Maki in their home when she passed through Japan on her return from China in 1926. All report his loyalty to, and deep interest in, Tech. It is to be hoped that present unsettled conditions will not prevent Maki's son, Nagatoshi, following his father's notable career as a Tech student. Certainly the son and particularly Maki and his wife are assured of a warm '93 welcome if and when they do come to Boston.

Charles Grandison Sargent died at his home in Graniteville, Mass., January 2. He was born at Graniteville, April 25, 1872, and there he always maintained his home. He spent three years, 1889 to 1892, with our Class in the Mechanical Engineering Course, following which he became connected with C. G. Sargent's Sons Corporation of Graniteville, manufacturers of wool and cotton machinery. His whole business career was spent in this concern, and he achieved prominence as a manufacturer. He married, in 1895, Miss Maude G. Smith, and they had two daughters, one of whom died in childhood. He was a member of the National Association of Manufacturers, the Manufacturers' Club of Philadelphia, and of many Masonic orders.

Suddenly, at his home in Sharon, Mass., James Stevenson Wadsworth died on November 27. His widow, the former Miss Lillian M. Harris whom he married in 1898, died on January 15, following. She had been a semi-invalid for a number of years. They had no children. Jim Wadsworth was a student in the Course in Mechanical Engineering and was well known to many in the Class. He was a frequent attendant at class meetings. Leaving the Institute before graduation, he was, for a short time, a draftsman with the General Electric Company, after which he was employed for 15 years in different capacities by the New England Telephone and Telegraph Company. Of this period he wrote the Secretary: "During this time, in 1901, I was shot by a crazy foreman in Portland. Stopped two 38's and read my own obituary in the paper, printed next morning, but needless to say I didn't



1893 Continued

read it until later." He left the Telephone Company in 1908 to study osteopathy, which he practiced from 1911 to 1918. He then joined the staff of Franklin Union in Boston, where for a number of years he taught telephony.

Notice has been received of the deaths of three other members who were special students with us: Martin J. S. Cromwell, who spent his life as a practicing physician in Baltimore, died at Ruxton, Md., July 14. — George Hardy Ropes, an architect and a founder of the architectural and engineering firm of Pollmar and Ropes and Lundy of Detroit, died of a heart attack on November 16 at his home, 721 Hazelwood Avenue, in that city. He is survived by his wife and a son. — Henry Foster Stearns died at Montreal, Canada, in February, 1936. For 40 years he had been identified with the Dominion Wadding Company of Montreal.

The following revised addresses have been received: Herbert Armstrong, 380 Grove Street, Pasadena, Calif.; Harold M. Mott-Smith, 910 Bedford Road, Schenectady, N.Y.; Lieutenant-Colonel Henry L. Rice, Holly Road, Virginia Beach, Va. — FREDERIC H. FAY, *Secretary*, 11 Beacon Street, Boston, Mass. GEORGE B. GLIDDEN, *Assistant Secretary*, 551 Tremont Street, Boston, Mass.

## 1894

Death has again invaded the ranks of our Class and taken a man who has had a very interesting and useful career. William Creighton Peet, one of our best-known students during the first two years, died of a heart attack while listening to the radio report of a football game, on Saturday, November 27, at his home on Grace Church Street, Rye, N.Y. His demise was entirely without warning, as he had attended to business as usual until noon. The following quotation from the Port Chester *Daily Item* shows in what high esteem he was held by his fellow townsmen and business associates: "The sudden death of William Creighton Peet, prominent Rye resident and president of the board of trustees of the United Hospital, saddened thousands of citizens in this entire section of Westchester County. His charm of person, his zealous efforts in behalf of the hospital and his activities in connection with the various Rye institutions and movements had endeared him to that entire community. Born in New Orleans, La., Oct. 20, 1871, Mr. Peet was a son of the late J. Doddridge Peet and Zelia Krumb-Haar Peet. His early education was received at St. Paul's School, Garden City, L.I. He attended the Massachusetts Institute of Technology and finished his engineering studies at Heidelberg and Darmstadt Universities in Germany. He became a construction engineer for the Schuckert Company in Germany upon completion of his studies in 1895. The following year, he was in charge of all electrical work for the Bavarian Exposition. . . .

"In 1897, Mr. Peet returned to this country and entered the laboratories of the American Telephone and Telegraph

Company in New York City. He specialized in experimental and development work. Later, he became associated with the George A. Williams Company, Jersey City, and in that position supervised the installation of electric light plants in Hagerstown, Md., and Newport News, Va. With Joseph A. McAnerney and Walter H. Powers, the latter also a resident of Rye, Mr. Peet entered the electrical contracting business in 1902. Out of that partnership came the firm of Peet & Powers, Inc., organized in 1908. In 1932 Mr. Peet retired from the firm, which has offices at 70 East 45th Street, New York. At one time he was secretary and later became president of the Electrical Contractors' Association of New York City. For three years, beginning in 1918, he was president of the National Association of Electrical Contractors. Mr. Peet was chairman of the board of the Rye Trust Company. In Rye, Mr. Peet was a member and former president of the Manursing Island Club. One of his outstanding community services was the reorganization of the Rye Country Day School in 1919. For many years he was president of the school's board of trustees. At the time of his death he was president of the Rye Free Reading Room; a vestryman of Christ's Church; a member of Delta Psi Fraternity and of Holland Lodge, F. & A. M., New York City. He was formerly a member of the Apawamis Club, Rye.

"Mr. and Mrs. Peet were married in New York in 1903 and established their home in Rye in 1907. — Surviving are his widow, the former Miss Meta Brevoort Potts of New York City; five children, Mrs. Leicester S. Lewis, of Bryn Mawr, Pa.; William Creighton Peet, Jr., of Washington, D. C.; Robert M., John K., and Miss Zelia K. Peet, all of Rye; and a brother, J. Doddridge Peet, of Juan Vinas, Costa Rica." — Peet was extremely popular in our Class at the Institute and was prominent in its affairs and as a member of the Delta Psi Fraternity. At the end of the second year he left to continue his studies in Europe. While he had always maintained an interest in '94, he had never been able to attend any of our reunions. We remember him with warm friendship, and join with his family in their sorrow.

The Secretary was extremely sorry to miss a call from Professor Henry B. Dates, head of the department of electrical engineering at Case School of Applied Science at Cleveland. His visit happened to come on a day when the Secretary was in New York to attend a meeting as chairman of the committee on the exhibit on food control for the New York World's Fair. While there, a delightful hour was spent with Ike Hazelton at his studio at 2 East 23d Street. Ike is engaged, in collaboration with another artist, on a series of strong sketches of patriotic type, which it is hoped will find use by some of the organizations interested in combating propaganda of subversive character. In addition, he is doing portraits and cover designs for periodicals. It is always a treat to drop in

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and talk over the old and new days with him. It is one of the Secretary's intentions to try to get the New York gang to join him at luncheon sometime soon. With Ike Hazelton, Billy King, Ben Holden, John Kittredge, Luther Nash, Mason Chace, Nelson Dalton, Arthur Tidd, Frank Robbins, and perhaps others whose addresses have not yet been located, a good time should be possible.

Sayward has recently sent in an interesting letter describing a summer bicycling tour of over 2,000 miles, with 64 nights spent at the Youth Hostels scattered over New England and Long Island. The *Hartford Times* gave him a first-page notice and dubbed him the "Bicycling Grandfather." Billy is an authority on hostels and has been to most of those in New Hampshire, Vermont, Massachusetts, and Connecticut, and some in the outlying districts. He may take a group of young people on a hosteling trip to Europe during the coming summer.

Luncheon with A. Tenney and his son, recently, was a pleasing occasion. Al's son is a graduate of Yale, and a fine young chap. He is connected with Pan American Airways and is located in Rio de Janeiro, Brazil. He knows the Atlantic side of South America well, and has excellent prospects with his company. It was a great pleasure to meet him, and we wished the Prescott sons might also have been in the party. — SAMUEL C. PRESCOTT, *Secretary*, Room 10-405, M.I.T., Cambridge, Mass.

## 1895

Walter Marmon, chairman of the board of Marmon-Herrington Company, Inc., of Indianapolis, has recently announced the 1938 line of all-wheel-drive vehicles for trucks, trailer-tractors, and so on. This all-wheel-drive construction provides a solution to nearly every difficult transportation problem. Full utilization of power and equally efficient traction in every wheel allows them to haul more and heavier loads. Ford V-8 trucks and passenger cars are converted to all-wheel-drive in their Indianapolis plant. The Marmon-Herrington Company offers a complete automotive transport engineering service and builds many special transportation units for unusual service in all parts of the world.

Jim Humphreys is living during both summer and winter at "Seven Fields" in Wilton, Conn. It is encouraging to know that he is president of the Technology Club of Bridgeport, and during the past year many noted speakers have been guests of the Club — among them Karl T. Compton, Ralph T. Jope '28, Erwin H. Schell '12, and Assistant Dean Pitre. Jim is also serving on the general committee for the Alumni Fund Campaign. — For some reason or other it is difficult to secure class notes from the '95 men. Possibly modesty may be the cause of this dearth of items. Your Secretary and Mrs. Yoder planned to take to the road on February 1 for several months and tour the South and Florida. Possibly many of our members are doing the same



## 1895 Continued

and have forgotten to write about their wanderings. — LUTHER K. YODER, *Secretary*, 69 Pleasant Street, Ayer, Mass. JOHN H. GARDINER, *Assistant Secretary*, Graybar Electric Company, 420 Lexington Avenue, New York, N.Y.

## 1896

As these notes are being written on January 24, another month has rolled by, and still no word from Con Young. If anyone knows anything of the present whereabouts of Con and Abby and their doings, please communicate with the Secretary. On this date Rockwell has reported that Billy Anderson, with Mrs. Anderson, is paying a visit to Boston, but Billy seemed to have brought along with him some germs which thrive in the Boston atmosphere, with the result that Billy, so far, had been in bed fighting a cold. Mrs. Anderson also was under the weather and confined to the hotel. Rockwell has been seeing quite a bit of Ralph Henry of late, and informs the Secretary that Ralph's avoirdupois is still holding up to a good figure and things are not going too badly with him. — At Christmas the Secretary received a surprise in the form of greetings from Victor Shaw, who seemed to have felt the urge to let it be known that he was still on earth. The greetings were sent from Seattle, where Vic was spending the winter away from his usual habitat in Alaska.

Billy Haseltine's boy is back again at M.I.T. this term to continue his graduate work. He reports that his father is going strong, although as a businessman he is not entirely happy over the present economic situation and is wont to express himself somewhat forcibly with respect to those whom he considers responsible, in part at least. — Those classmates who read *The Review* through from cover to cover may have noticed Walter Pennell's name appearing as a solver of mathematical puzzles, thus showing that Walter still maintains his excellent student form as a star performer in mental gymnastics of the mathematical variety. — Charlie Lawrence, in connection with his work with the Auditorium Conditioning Corporation in New York City, has been doing considerable traveling. In a letter received from him early in January he was due to make a trip of two weeks to Cincinnati and, later on, a longer trip to Cleveland, with possibilities of other trips to St. Louis and Denver. He had already covered Chicago, Philadelphia, and Boston. — Word received from Fred Fuller's secretary is to the effect that Fred continues in poor health and is unable to give any attention to business. — Gene Hultman's name has been appearing in the Boston papers lately as a possible candidate for governor of Massachusetts.

Lloyd Wayne of Indianapolis happened to be in Chicago not long ago and incidentally visited some friends in Riverside, Ill. These friends remarked that they had a neighbor whom Wayne might know as an Alumnus of M.I.T., and his name was Harrington. Contact was made and

it proved to be Joe Harrington. Joe came over to see Wayne, and they had a very pleasant hour together. — The Boston papers of January 23 contained notice of the death, on January 22, of Charles Alfred King, one of the prominent citizens who became famous in days gone by as a brewer of King's Bohemian beer. He took only a special course at M.I.T. and was assigned by the Registrar to the Class of 1896. His connection with M.I.T. was slight, and his interest in the Class was nil. He was of English descent and every year spent several months back in England. — The Fullers are off again, and the Brockton *Enterprise* of December 29 contained a letter from Pasadena, Calif., giving an interesting account of their automobile trip to Death Valley, Calif. One striking feature was that during the entire three days they passed in the valley it was cloudy or rainy all the time. — The class report on the Alumni Fund as of January 24 is \$10,064 from 51 members of the Class. This shows an excellent class average subscription, but the percentage of subscribers is still low and your Secretaries are counting on you fellows who have not reported to do so. — CHARLES E. LOCKE, *Secretary*, Room 8-109, M.I.T., Cambridge, Mass. JOHN A. ROCKWELL, *Assistant Secretary*, 24 Garden Street, Cambridge, Mass.

## 1901

Whoever has read "Northwest Passage" by Kenneth Roberts, which describes events in this country and in England some 180 years ago, has been impressed with the few advantages of those times as compared with those which we enjoy today. In fact, since the days when the members of the Class of 1901 first walked up the steps of Rogers Building, back in 1897, further tremendous advances have been made, and in addition there have been occurring some of the most interesting events in the history of this country. We of 1901 may, therefore, feel well satisfied to have lived during this period, which has included two wars for this country and many advances in scientific achievements, such as electricity, radio, aviation, and many others. We are now in the midst of all the isms and are still in the dark as to just what will be our ultimate destination. A number of 1901 men have taken an important part in the affairs of our country and of the world; sometime we may be so fortunate as to find a class historian to record comprehensively the achievements of our classmates.

In continuing the recording of items of class news, as noted on the data sheets in the order in which received, I find that the men generally were not very liberal in their comments, either about themselves or other members of the Class. Nevertheless, certain items of interest may be gleaned. For example, Charlie Rockwood of Geneva, Ill., made only one comment on his data sheet: "Republican." That means a lot in this day and age, and it would indeed be most interesting to know just how many

of our own classmates and of the other Tech Alumni would classify themselves as present members of the Grand Old Party. — Howard Wood of Rockville, Conn., advised that he is finding means of keeping busy, although retired from business, and mentions that he was recently elected a trustee of the George Sykes Manual Training School. Although he took Course V at Tech, he finds that he is sufficiently well versed in building construction actively to supervise the proper maintenance of the buildings of the Training School. — William Blauvelt, who is another retired member of the Class and who spends his summers in Hingham, Mass., has again registered for the winter at 246½ 7th Avenue, Northeast, St. Petersburg, Fla. Wish we could all join him for a visit, although we do like crisp, cold weather too well to spend all winter in Florida. — Bill Farnham of East Orange, N.J., another retired classmate, also indicates that he is finding his leisure worth while and states that last summer he became considerably better acquainted with his country by traveling some 4,700 miles by automobile.

Alec Taylor, who is one of our three Wilmington, Del., classmates, sent in his data sheet without comment, but sometime perhaps he will give us some interesting news regarding his avocations as referred to in *The Review* for January, 1937. — Fred Freeman of Portland, Maine, who took mining engineering at Tech but now confines his business interests to manufacturing and dealing in the type of rugs which have helped to make New England famous, added no news comments to his data sheet, although it would seem that he must have covered something else besides attractive floors in connection with his rug business. — Phil Buxton of Worcester, Mass., was also noncommunicative on his data sheet. As a dealer in scrap iron and metals he could probably, if business permitted, tell some very interesting stories. — Charles Auer of El Paso, Texas, who took mining engineering at Tech and who continues in that interesting business, wrote that Professor Thresher '20 was expected to make a visit to El Paso. Auer anticipated that the "desert natives" would be just as much impressed as they were when Dean Lobdell '17 made a visit down there last spring. — Ellis Lawrence, who actively continues his architectural interests in Portland, Ore., and who is in partnership with Holford, another 1901 man, advised that his firm last year completed a million dollars' worth of P.W.A. work on the campus of the University of Oregon. Ellis is also very active in connection with municipal and educational affairs in his part of the country and is a member of the executive committee of the American Institute of Architects. Beside those interests he proudly announces that he has just become a grandfather and that he had written an epic (?) which he called, "The Old Gentleman Nears Sixty." We wish that he had quoted the epic, for, as he states, it is somewhat of a shock to be

1901 Continued

referred to as "The Old Gentleman." He indicates that some others of the Class might also like to try their hands at blank verse.

Ted Lange, who is in the real estate business in Springfield, Mass., writes that he made a recent, interesting trip with the Western Massachusetts Engineers Club to the shipyards of the Bethlehem Shipbuilding Corporation at Quincy and that he had the pleasure of seeing Professor Wheeler of M.I.T.; more recently he had seen our old Professor Allen from Tech. It certainly would be interesting to meet again a lot of those old professors who undoubtedly did us so much good, although at the time we did not always appreciate them.

The Alumni Office advises us of the following new addresses: Colonel Theodore A. Baldwin, Jr., United States Army Air Corps, 303 Federal Building, Houston, Texas; Leslie E. Merrill, 72 Harland Avenue, Lowell, Mass.; Harry P. Parrock (our old friend Perk), 1860 Jackson Street, San Francisco, Calif.; J. Russell Putnam, R.F.D. No. 2, Waterbury, Conn. No one of these four has as yet sent in a data sheet for this year, but we hope that such omissions will soon be rectified. — From the Alumni Office, also, we are sorry to learn of the deaths of two more of our classmates: William T. Lane and Albert H. B. Arnold. Lane's address has been missing from the class records for many years, and the information regarding his death apparently was received from his brother. The date was given as January 22, 1935, which was so long ago that possibly some one of Lane's friends can give us some further information for inclusion in these notes. Arnold's death was reported by his wife as having occurred on October 7. No other comment was made, so we should like further information on this also for these notes.

In regard to the Alumni Fund Drive for new recreational and athletic facilities at M.I.T., there is still ample time to make contributions before the closing of the books. Any '01 man who has not as yet contributed is urged to do so, even though financial considerations may necessitate pledging only a small donation. — ROGER W. WIGHT, *Secretary*, Care of The Travelers Fire Insurance Company, 700 Main Street, Hartford, Conn. WILLARD W. DOW, C.P.A., *Assistant Secretary*, 20 Beacon Street, Boston, Mass.

## 1902

Your Secretary recently received a letter from Nagle, XIII, who is located in Roseville, Calif. We met last in 1908 in San Francisco at the organization of the Alumni of northern California. He had been with the American Bridge Company but, having trouble with his eyesight, turned to growing fruit and raising cattle and pure-blooded draft horses. His partner took care of the orchard in the summer season, while Nagle lived in the saddle, grazing the cattle. He writes: "I was real pleased, as well as astonished, to receive your

letter in this morning's mail. I could hardly believe that a man that I had not seen for these last 30 years would take the time to write. However, I was glad to learn that you were still on the job. I haven't seen any of the boys since that meeting in 1908, except that I ran across C. E. McCarthy while he was in some way connected with the government in a military capacity and was located at Sacramento, which is not far from Roseville. This was about ten years ago, and I do not know where he is now.

"You spoke about Bartlett pears in your letter. Well, I gave that up about 1911 and have been in the insurance business almost all the time since. I never learned typing at school, so I am one of those two-fingered artists, as you perhaps have guessed by this time. I would not trust a personal letter to my clerk, so I simply had to get the old machine out and do the best that I could. I haven't been back to the East Coast since 1916 and I notice that you mailed your letter at Salem. The last time I saw Salem, it was burning up and I watched it from Nahant. As for myself, I am still hale and hearty, am married, have one son at the university and one daughter at high school. I stayed single till I was 40 — never could stay long enough in one place to get acquainted. I sure was glad to hear from you, and I trust that I could just keep this letter going for some time; however, I am called away at this moment, so must cease. Regards to any of the old gang that you might see." — BURTON G. PHILBRICK, *Secretary*, 246 Stuart Street, Boston, Mass.

## 1904

Bob Palmer and George Meyers '29 recently obtained, from the United States government, patents on a carbon brush and on a method of manufacturing electrical cut-outs. Bob is mechanical and electrical superintendent of the research laboratory of the General Electric Company at Schenectady, and Meyers is an electrical engineer with the same company. — George Ainsworth, consulting engineer on illumination, has developed a new type of lighting fixture known as the Ainsworth Magna, incorporating new principles which make it possible to reproduce, indoors, the diffuse lighting of outdoors. The Carrier Engineering Corporation, pioneers in air conditioning, have "light conditioned" their offices with the Ainsworth Magna. — Don Galusha and Mrs. Dorothy Boynton Gallagher announce their marriage on Sunday, October 10, at Burlington, Vt. — Plans for the annual class reunion to be held in June are in a formative stage, and due notice of the time and place will be the subject of further announcement.

*Necrology.* Elroy C. Riebel, formerly of Columbus, Ohio, died on February 21, 1937. — Moses Brown, assistant superintendent of the Ray Consolidated Mine, died at his home in Ray, Ariz., on April 22, after an illness of only a few hours. He had been a resident of Ray for the past 21 years and is survived by his wife, Mabel, and two children: Moses, Jr., a

student at the University of Arizona; and a daughter, Barbara. — Harold Haskins, of Radnor, Pa., died on August 19. — Clem Clare Carhart died at his home, 269 South 11th East Street, Salt Lake City, Utah, on Wednesday, November 17. He was born in Ogden, Utah, August 3, 1881, the son of Sanford M. and Frances Schramm Carhart, his parents being among the early gentiles to settle in this Mormon community. His early education was in a private school, until the public school system was established in Ogden. He was graduated from Ogden High School in 1900 and immediately entered Technology, graduating from the Mining Course with our Class. On graduation he went to Boise, Idaho, to a mine in which his father was interested, and, upon the closing of this mine, went into the Ely, Nev., district where there was much activity at the time. In 1910 he became Carey Act engineer for the southern part of Idaho and, upon the completion of that work in 1913, went into reclamation work at Sacramento, Calif.

In 1919, Carhart went to Salt Lake City, where he made his home, although mining, irrigation, and road building work took him into surrounding states. For a brief time he conducted classes in mining at the University of Utah, and during the past three years was connected with the Utah State Road Commission. He always enjoyed being part of a work which was creating some useful and beneficial result. He was a member of Weber Lodge Number 6, Ancient Free and Accepted Masons, and of the Delta Tau Delta Fraternity. Surviving him are his widow, May Hume Carhart; four daughters, Frances, Clare, Winifred, and Gene Carhart — all of Salt Lake City; and a brother, Frank M. Carhart, of Boston. — HENRY W. STEVENS, *Secretary*, 12 Garrison Street, Chestnut Hill, Mass. AMASA W. HOLCOMBE, *Assistant Secretary*, 4817 Woodway Lane, Northwest, Washington, D. C.

## 1905

The Alumni Fund Campaign certainly raises havoc with your Secretary's capacity as a news gatherer. Worse still, the available news this month is mostly of a somber nature. Frank Chesterman, VI, sends a clipping from a Beaver, Pa., paper giving further details of the death of Walter A. Clarke, XIII: "Walter A. Clarke died suddenly at his home, 941 Second Street, Beaver, Sunday, October 24. Mr. Clarke was born in Boston, Mass., December 8, 1882, and spent most of his early life in Biddeford, Maine. He was graduated from the Massachusetts Institute of Technology, class of 1905, as a naval architect. After following his profession for a number of years he came to Beaver Valley where he was manager of the Colona Manufacturing Company, Monaca. Mr. Clarke was a director in the Manufacturers' Association of Beaver Valley, a member of the Fort McIntosh Club, the Beaver Valley Country Club, a life member in the following Masonic Orders: Orphans Hope Lodge



## 1905 Continued

F. and A.M., Weymouth, Mass.; Council R.A.M., Baltimore, Md.; South Shore Commandery, East Weymouth, Mass.; and Aleppo Temple, Boston, Mass. He is survived by his widow, Alice Nash Clarke, one son, William Nash Clarke, and a sister, Mrs. Ethel Mitchell of Rangeley, Maine." We learn that Mrs. Clarke is temporarily residing in Marshfield, Mass., and that William will be graduated from Dartmouth next June.

Frank also informs of the death of Harry Charlesworth's wife on December 16 after an illness of several months. Harry has four children: Rosemary, a graduate of Vassar; Roger, a senior at Princeton; and two younger boys, one of whom is at Phillips Exeter Academy. We also learn that Bill Ball's wife passed away on December 16. Bill is now living at 215 Belmont Street, Wollaston, Mass. To Harry and Bill goes spontaneously the heartiest sympathy of the entire Class.

Accompanying his pledge to the Alumni Campaign Fund comes a note from John T. Glidden, with address Cia. Aurifera Anglo-Peruana-Parcoy, Via Tiujillo, Parcoy, Peru, S.A. That probably means that he owns a mine or two "down under." How many remember the trick he pulled on an unsuspecting '05 bunch in Boston many years ago, when he appeared unexpectedly as a Brazilian count or something? — Ray Bell reports, this time from the Pacific Coast. He doesn't say whether he is on the *Yankee* or not.

These changes of addresses are noted: James H. Tebbetts, 89 Kemper Street, Wollaston, Mass.; Richard O. Marsh, 105 Leland Street, Chevy Chase, Md.; Francis M. Hill, 43 Lincoln Avenue, Saugus, Mass.; John C. Damon, 3103 Hawthorn Street, Northwest, Washington, D.C. — FRED W. GOLDTHWAIT, *Secretary*, 274 Franklin Street, Boston, Mass. SIDNEY T. STRICKLAND, *Assistant Secretary*, 75 State Street, Boston, Mass.

## 1906

On December 27, while lunching at one of Boston's well-known market restaurants, I ran into R. J. Ross, III, who was accompanied by two Arlington men, acquaintances of the Secretary. Through the aid of Ross's companions the interesting news was obtained that Ross is now city engineer for the city of Hartford, Conn. He has been in the engineering department of that city since 1907 and was promoted to his present position from the position of assistant city engineer.

It has come to the Secretary's attention that Cy Young has recently celebrated his 25 years of service with the Northern States Power Company. We are indebted to Leonard Olson 25 of that company for the following brief account of Cy's career with the organization: "Cy began working for the Minneapolis General Electric Company, now a subsidiary of the Northern States Power Company, January 3, 1913, as a power salesman; in time working himself up to sales manager. About four years ago he was made vice-president in charge of sales of the entire Northern States Power

Company System, which position he still holds. On January 3 . . . he completed his 25th year of service with the company. Right now, in addition to his regular duties, he is busily engaged in acting as regional director in the Alumni Fund Drive."

Thanks are due Ralph Patch for submitting the following: "Saturday morning, December 11, I went into the washroom of my car on the *Federal* on the way home from Washington. I heard a voice behind me which had a familiar sound. I looked around, but the man was back to. As he talked again, I was sure it was the voice of George Hobson. When he finally turned around, my guess was confirmed. It must be nearly 30 years since I have heard George's voice, but for some reason it registered immediately. George and his son were on the sad errand of returning to Lowell to bury Mrs. Hobson." — On Monday, January 13, Eleanor Manning O'Connor spoke at the Housing Conference at Mount Holyoke College, South Hadley, Mass. Her subject was "The Old Harbor Housing Project at South Boston, Mass.," for which she was architect.

The Secretary regrets to report the death of Robert B. Gregson, II, who passed away on December 17 at his home in Clifton, N.J. He was born in Fall River on February 7, 1882, and was the son of John and Amelia Gregson. Obtained his early education in the schools of that city, then entering Worcester Academy, and finishing at M.I.T. For a few succeeding years he worked for the American Optical Company and, in 1917, went to Buffalo to become manager of the Spencer Lens Company. In 1922, he was with the Kittinger Company of Buffalo and covered the entire southern section of the United States, being connected with that company at the time of his death. He is survived by his wife, Anna White Gregson, and two brothers, Lawrence H. Gregson of Brunswick, Maine, and John E. Gregson of Buffalo. — JAMES W. KIDDER, *Secretary*, Room 802, 50 Oliver Street, Boston, Mass. — EDWARD B. ROWE, *Assistant Secretary*, 11 Cushing Road, Wellesley Hills, Mass.

## 1907

One of America's leading physicists is E. Leon Chaffee of our Class. Ever since 1907 he has been connected with Harvard University, where in 1908 he received his master of arts degree and in 1911 his Ph.D., both in the School of Arts and Sciences of Harvard's Graduate School. He became instructor in physics, rose through the various ranks until he became a full professor in April, 1926, and is now Gordon McKay professor of physics and communication engineering. Author of "Physical Laboratory Manual" in 1914, "Theory of Thermionic Vacuum Tubes" in 1933, and of numerous periodical articles; inventor of "Chaffee Gap," fog-dispersal devices, and many improvements in communication, all of which were assigned to John Hays Hammond, Jr., and later sold to the Radio Corporation of America;

eminent in research in connection with electrons, the electrical response of the retina for stimulation by light, and vacuum tubes, Leon is perhaps the outstanding scientist of 1907.

In the Boston *Herald* of December 29 appeared the following article: "After 10 years of research, a Harvard scientist has solved one of engineering's most complex and costly problems, the mathematical mystery of the large power vacuum tube, the 'Aladdin's Lamp' of modern electricity. The developments, made by Prof. E. Leon Chaffee of the Croft Laboratory of Communication Engineering, are expected to affect every branch of the vast electrical industry where literally hundreds of millions of vacuum tubes, both large and small, are in constant use. In their first practical application, Prof. Chaffee's findings may lead to the saving of hundreds of thousands of dollars' worth of electric power annually by increasing the efficiency of the giant tubes by which radio broadcasting stations control and transmit their tremendous energy output. Engineering authorities regard Prof. Chaffee's work as 'a signal triumph of laboratory and mathematical skill over one of the most complicated engineering problems of this generation.'"

"Although the vacuum tube has long been recognized as one of the most vital tools of modern industry, its development in efficiency has been tremendously retarded because the complicated mathematics involved has baffled engineers. Prof. Chaffee now has evolved a revolutionary set of formulas with which engineers for the first time can calculate improvements in the tubes on paper mathematically and then check their findings with routine laboratory tests. As a starter, Prof. Chaffee has himself applied his formulas to the huge power tubes used in broadcasting and has found that these units can be so altered that in many cases their electrical output and efficiency may be greatly increased.

"The impact of this work will not be confined to the radio industry alone, however, but will be felt throughout the worlds of industry, research and entertainment where the tubes are in universal use to control the flow of electric current. Sound movies, the 'electric eye,' remote control instruments, X-ray, television, long distance telephoning, electrical surgical knives — these are but a few of the hundreds of applications of the modern vacuum tube."

Early in December, Dick Ashenden was elected a member of the board of aldermen of the city of Newton, Mass. We have been told that, urged to be a candidate for this office by substantial citizens of his section of the city, he made no personal effort to be elected, but agreed to accept as a civic duty. The majority of the board in Newton, a suburb of Boston, are of this high type of business and professional men.

From a cooperative letter from Parker Dodge, patent attorney of Washington, D.C., we learn that Clayton R. Denmark,



## 1907 Continued

whose wife is an invalid, is engineer of the National Museum in Washington; that Morris A. Stewart, who received one of the first Ph.D.'s that the Institute granted, is an examiner in the Patent Office at Washington; that John A. Davis, who is with the Bureau of Mines at Washington, was seriously ill during the summer; that Willis G. Waldo, who is president of a utilities corporation, has an office at 506 Mills Building, Washington, but is rarely in that city, as he spends most of his time in the South and in Cuba.

And speaking of "coöperation," here is one of the finest examples of that quality which we have ever observed. Late in October we received notice from the Tech Alumni Office of the death of William H. Sage, Jr., and in accordance with our custom, wrote a letter of sympathy to his widow, requesting any facts regarding his life that she was willing to give. Under date of December 17, we received from Stuart C. Godfrey, lieutenant colonel in the Corps of Engineers, Office of the Chief of Engineers, War Department, Washington, the following letter: "My sister-in-law, Mrs. Sage, has asked me to answer your letter of November 6, inquiring about her husband, Bill Sage, of our Class at M.I.T. Bill Sage and I, as perhaps you know, were classmates at West Point, and I take pleasure in inclosing a copy of his official record and vital statistics. From this you can readily abstract what you desire. You will note that the high point in his military service was as commanding officer of the 112th Engineers (37th Division) in the final stages of the fighting in Belgium, and that he was made chevalier of the Legion of Honor, and received the French *Croix de Guerre*, and the Belgium War Cross. With respect to his civil history, he remained as works manager, Virginia Alberene Corporation, until his death on April 26.

"I had a good deal of contact with Bill Sage all through his life, and I have a very great admiration for him. His sparkling wit was outstanding in any company. As the years went on he suffered increasingly from arthritis and became partially crippled by the same. To this was added, during the last two or three years, the ravages of tuberculosis, but his fine spirit was in no wise impaired. I never heard him grouch, and never saw a finer example of courage. I am writing a biography of Bill for the West Point Association of Graduates, and will be glad to send you a copy when it is completed in a month or two."

Godfrey is an '07 man, but was with us at Tech only during our freshman year and has many more ties holding him to West Point than to the Class of 1907. Yet he took the time and effort to have photostatic copies made of the vital statistics sheet referring to Sage, held by the secretary of the Association of Graduates of West Point, and the official record of the War Department, and to write the letter just quoted. Our gratitude to Stuart Godfrey! If only all the graduates of '07, let alone men with only

one year's class affiliation, would do as much regarding *themselves*! Some of you men who are reading this (for we know who the '07 men are who receive The Review) haven't written us about your doings for years. Your coöperation will be most welcome — now.

Referring again to Bill Sage, a perusal of the information at hand shows that he was born at Fort Keogh, Mont., on January 11, 1886, attended high school at Mattsburg, N.Y., was with our Class at Tech during 1903-1904, and was appointed "at large" to West Point, where he was a cadet from June 16, 1904, to June 11, 1909, when he was graduated and became a second lieutenant in the Corps of Engineers. He resigned from the Army on September 15, 1919, and until 1922 was associated with the Winchester Repeating Arms Company in the manufacturing engineering department. From 1922 to 1925 he was vice-president and general manager of Dillon-Sage, Inc. (garages and repair shops), and from 1925 to 1934 was plant engineer and works manager of Virginia Alberene Corporation, Schuyler, Va., quarries and fabricators of massive soapstone products, operating, in addition, hydro-electric plants and a standard-gauge railway, the Nelson and Albemarle. From May, 1935, until his death, he was vice-president and general manager of this railroad, and also vice-president of the reorganized company called Alberene Stone Corporation of Virginia.

Sage married Margaret B. Rich on May 21, 1910, and had three children: Margaret C., born March 5, 1911; Harriet M., born August 21, 1914; and William H., Jr., born August 25, 1918. All of these survive him. We have his complete military record, but Godfrey's letter gives the high spots. It is interesting to note that his father was a general in the Army, one of his grandfathers a major, and the other grandfather a brigadier general of volunteers.

For Charles M. Hutchins, graduate in mining engineering, whose whereabouts have been unknown to us for many years, we received in November the address, Trudeau Sanitarium, Box 103, Trudeau, N.Y. A letter sent to Hutchins on December 5 has brought no response as yet.

In closing these notes, here is a real news item! We have made arrangements with the management of Oyster Harbors Club for our 35th class reunion to be held there over the week-end of June 6 and 7 (or nearest those dates) in 1942. We know you will all approve. — BRYANT NICHOLS, *Secretary*, 126 Charles Street, Auburndale, Mass. HAROLD S. WILSON, *Assistant Secretary*, Commonwealth Shoe and Leather Company, Whitman, Mass.

## 1908

Belated word has been received that, as of January 2, 1937, Cross and Brown Company, 270 Madison Avenue, New York, N.Y., announced the appointment of Charles W. Morrison as vice-president in charge of the appraisal department. — Henry R. Sewell, Vice-President and

manager of the cooling and air-conditioning division of B. F. Sturtevant Company, was recently elected president of the air-conditioning bureau of Boston.

We have the following changes of address to report: William C. Folsom, 80 Pearson Road, Somerville, Mass.; John Gianella, 271 Ninth Street, Brooklyn, N.Y.; Frederick W. Lyle, Penn Lincoln Hotel, Wilkesburg, Pa.; Frank J. Robinson, 72 Myrtle Street, Boston, Mass.; Ernest Whitten, 49 Hawthorne Street, Lynn, Mass.; Kenneth C. Boush, Y.M.C.A., 55 Hanson Place, Brooklyn, N.Y.; Elliott S. Church, 10326 Mississippi Avenue, Los Angeles, Calif.; Chester S. Colson, International Hydro Electric Corporation, 220 East 42d Street, New York, N.Y.; N. LeRoy Hammond, 4 Maple Avenue, Ellenville, N.Y.; Frank E. Ludington, 41 Prospect Street, Waterbury, Conn.; George M. J. Mackay, American Cyanamid Company, West Main Street, Stamford, Conn.; Rens E. Schirmer, 9 Park Avenue Terrace, Bronxville, N.Y.; Arthur E. Skillings, 2 Willow Terrace, Newton Center, Mass. — H. LESTON CARTER, *Secretary*, 185 Franklin Street, Boston, Mass.

## 1909

At the annual meeting of the American Society of Civil Engineers held in New York in January, Mollie Scharff presented to the power division a paper, entitled, "Cost of Depreciation and Obsolescence in Energy Generation." — George Wallis was in Boston at Christmas time and dropped in for a few minutes. George's elder daughter, Elizabeth, who was graduated from Smith College in 1935 and continued her studies at the Harvard Medical School, was married on January 3 to Albert W. Dodge of Wenham, Mass. Mr. Dodge is associated with the Bartlett Tree Expert Company. The younger daughter, Frances, was graduated from the Connecticut College for Women in 1937, and is now in Boston, where she is connected with the Jordan Marsh training school.

Brad Dewey and his wife had the amusing (?) experience of being entrapped for more than an hour and a half with two other couples in an elevator, while on their way to a New Year's party. With Brad's 200 plus, is it any wonder the fuse blew out? — On December 4 the New York crowd had a class luncheon at which Leicester F. Hamilton '14, Professor of Chemistry and chairman of the dormitory board, was the guest speaker. Paul Wiswall, in reporting this meeting, says: "We had firsthand information about what the director of the Dorms thinks about when the phone rings and he is told that there is a red cow on the roof of one of the buildings and what is to be done to get her down? The director purposely does not live too near the Institute and maybe the reason is that in the time he consumes in getting to the buildings, he can map out a plan of action. Hamilton gave us the idea that there is no sense in taking a student prank too seriously, and I, for one, got the impression that he is making a good

1909 Continued

man in his job for that very reason. Certainly no one, to look at Hamilton casually, would say that he is pining away to a shadow from worries about the cows on the roofs." — CHARLES R. MAIN, *Secretary*, 201 Devonshire Street, Boston, Mass. *Assistant Secretaries*: PAUL M. WISWALL, MAURICE R. SCHARFF, New York; GEORGE E. WALLIS, Chicago.

## 1911

At the close of 1937, when the current Alumni Fund had been running for two and a half months, 1911 had 46 subscribers, or 12.14 per cent. Among the Classes graduating since the turn of the century this percentage was exceeded by but three rival Classes: 1901 with 13.92, 1905 with 12.38, and 1926 with 12.25. However, the total amount subscribed was but \$3,565, placing our Class 15th among the 37 graduating Classes since 1900. Accordingly there is much to be accomplished in the ranks of 1911, and your Secretary urges *all* to give this important matter thought.

Dick Ranger, VIII, sends along some more interesting bits gleaned from the annual banquet of the New York Alumni. He says he "finally got out of Dick Gould, XI, that he was just about as high in sanitation engineering in New York City as he possibly could be without getting into the vicissitudes of politics." Continuing: "Johnnie Scoville, IV, is very happy in his new line up with McLellan Stores (370 Seventh Avenue) and a family that keeps him mighty busy." Also present were Jim Campbell, I, of Eadie, Freund and Campbell; Livingston Ferris, VI, Bell Telephone Laboratories; Bob Morse, VI, American Gas and Electric Company; and Harry Tisdale, V, American Dyewood Company. Concerning his own business — Rangertone, Inc., 201 Verona Avenue, Newark, N.J. — Dick writes: "Here in Electric-Music, our little company is busy with chimes; in particular we have been for the Christmas season. Another installation is being readied for the National Broadcasting Company, as well as two cemetery jobs on hand and a church. In addition to that we have just put in an electric organ at the State Teachers College at Oneonta, N.Y., and another on demonstration here in Newark at the State Teachers College. We are certainly becoming more convinced than ever that electric music is going to be a new outlet for musical expression beyond anything that has yet been done in what have become the classic instruments."

In mid-January a special luncheon of the Boston Chamber of Commerce to hear Labor's William Green provided the background for a miniature '11 reunion, with three Bostonians — Tom Haines, II, of Boston Edison and Carl Richmond, I, and O. W. Stewart, I, of the Factory Mutuals — greeting John Wilds, II, President of the Protection Mutual Fire Insurance Company. John had just blown into Boston that morning from Chicago to negotiate a twenty-six million dollar line of fire insurance. With characteristic gusto John accom-

plished his task in one day. Completing the Tech tinge at their table, two other insurance leaders joined the '11 quartet: E. V. French '89 and E. H. Williams '16.

Carl Richmond, by the way, shortly after the New Year, opened a new district office in Room 808, Rand Building, Buffalo, N.Y., for the eight Factory Mutual Insurance Companies that are organized under Massachusetts. He will also represent in western New York, Pennsylvania, and Ontario the Boston Manufacturers Mutual Insurance Company group, of which Jack Dalton '15, our present Alumni President, is executive head. Carl's family will remain in Quincy until the schools close and then Mrs. Richmond and the two boys will probably join Carl and live in the vicinity of Buffalo. Meanwhile Carl hopes to make Boston on alternate week-ends. As this is the first time one man has represented directly eight Factory Mutual Companies in soliciting business, Carl finds plenty of work cut out for himself. He's more than equal to it, say we.

Congratulations to Roy MacPherson, II, on his recent election as commodore of the Quincy Yacht Club, an office recently filled by Charles Francis Adams, ex-Secretary of the Navy. The Quincy *Patriot Ledger* of January 15 says: "For the first time in its long history, the Quincy Yacht Club last night at its annual meeting chose a non-Quincy resident to be its leader. The new commodore is Roy G. MacPherson of Framingham, prominent as a cruising man in yachting circles and a newspaper publisher in private life. He was unanimously elected to succeed Commodore George Newcomb, who led the club last year. The new commodore served as vice commodore under the regime of Commodore Newcomb. He is owner and skipper of the sturdy cruising ketch *Comewa*, in which he takes cruises along the coast in the summer time. He took a leading part in establishing a course in navigation at the Quincy club two years ago."

Among the many bills filed early this year in the Massachusetts Legislature is one providing for the incorporation of the Worcester Junior College to offer courses in engineering fields, in liberal arts and sciences, and in secondary-school work. Among the 21 men proposed as trustees is our own Fred Daniels, VI. And speaking of Worcester, my "big feller" did return to his work as a freshman at Bowdoin College on January 6 and seems to be back in stride in good shape, following recovery from his auto accident injuries. — Reminding you once again that class notes from little letters to Dennie grow, we close with a request that you reread paragraph one of the current class notes. Thank you! — ORVILLE B. DENISON, *Secretary*, Chamber of Commerce, Worcester, Mass. JOHN A. HERLIHY, *Assistant Secretary*, 588 Riverside Avenue, Medford, Mass.

## 1912

Latest reports from the Alumni Fund show that 1912 is below average, both as to total amount subscribed and the per-

centage of men subscribing. Even though the total may not run into large figures, we should be able to make a satisfactory showing as regards the percentage of class members subscribing. Will everyone who has not yet subscribed make a sincere effort to send in a pledge. I know you will make the amount as large as possible, but the important thing is to increase our percentage of subscribers. News this month is at the zero point — any contributions along this line will also be appreciated. — FREDERICK J. SHEPARD, JR., *Secretary*, 125 Walnut Street, Watertown, Mass. DAVID J. McGRATH, *Assistant Secretary*, McGraw-Hill Publishing Company, Inc., 330 West 42d Street, New York, N.Y.

## 1913

Twenty men turned out for our class dinner, Saturday, January 22, at the Hofbrau in Boston. Among those men whom I hadn't seen in many years were: E. T. Dobbyn, VI, now assistant naval architect, Bethlehem Shipbuilding Corporation, Quincy, Mass.; A. M. Jones, I, lieutenant colonel, United States Army, acting as instructor for National Guard at Quincy, Mass. (Jones enlisted in our junior year); A. L. Higgins, VI, engineer for Boston Consolidated Gas Company; W. H. Leathers, II, bond salesman with Arthur Perry and Company, Inc., Boston; H. O. Glidden, IV, office manager for Allen, Collens and Willis, architects, Boston (Heinie's firm specializes in college buildings); A. P. Nelson, II, chief engineer for Cities Service Company, at their Braintree, Mass., plant; H. N. Carlson, VI, teacher of mathematics at Boston University and the New England Aircraft School; H. P. Fessenden, I, structural engineer for Stone and Webster, Boston; E. E. Jewett, II, assistant engineer for American Sugar Refining Company, Boston; H. B. Horner, IV, publisher and President of Auto List, Inc., Boston. (Bob publishes car registrations, including a numerical list of Massachusetts car registration numbers, and in addition he is an advertising counselor.) Messrs. Townsend, Mattson, Thompson, Capen, Fallon, Ready, MacKinnon, Cohen, and Murdock were included in the list.

We heard and discussed plans for our 25th reunion, covering Saturday to Monday, June 4, 5, and 6. Briefly, these plans are for a rousing dinner Saturday night at the Commander Hotel, Cambridge; golf and all sorts of good things all day Sunday at the Kernwood Country Club, Salem; and participation Monday in the Institute's excellent Alumni Day program. Professor Townsend whispered to us that we can expect something real at the Monday night dinner and entertainment at the Statler. Our reunion committee will certainly make it easy for you to take in any one or all of the events on the three-day program. You can come when you like, and spend as little or as much as suits your tastes and pocketbooks. Visiting wives will find plenty of diversions planned for them, and if a sufficient number of men



1913 *Continued*

would like to have a preliminary blowout at a resort near Boston, we'll be glad to make all arrangements for that. — We shall have another class dinner on Saturday, April 2, at the University Club, Boston.

I had this nice letter from Effie MacDonald Norton, V: "It is a long time since I promised to write a letter for the class news. I am still pathologist at the hospital (Concord, N. H.), with the work steadily increasing. I feel that my most important achievement in this last year has been the building of a new post-mortem room here, which is conceded to be the best one in northern New England. I don't see many '13 men here, but Guy Swenson was president last year of the Technology Club of New Hampshire. When we had our annual dinner last fall, Rusty Sage was one of the speakers. I read about the plans for the 25th and I think they sound good." — **FREDERICK D. MURDOCK**, *Secretary*, Murdock Webbing Company, Box 784, Pawtucket, R.I.

## 1914

Class notes seem to have reached a new low this month. Perhaps they, too, are trying to duplicate the business averages; if so, let us hope that this represents the inactivity preceding the promised upturn. At the midwinter convention of the American Institute of Electrical Engineers, during the last week in January, H. A. Affel was the leader of one of the sessions and provided the background discussion for the papers relating to broadband wire transmission systems. Such systems have much to do with the high-quality radio programs, the future requirements of television, as well as multiple-channel telephonic service. Your Secretary also attended this convention. — **Charlie Fiske** wrote that he recently had the pleasure of seeing Dave Sutherland, who was passing through New York on his way to Bermuda. Another '14 man taking a southern winter cruise was E. C. Crocker.

Big doings are planned for Alumni Day, June 6: special program featuring the abandonment of Rogers, inspection of the new buildings of 1938, and other interesting features. Plan to be on hand. — **H. B. RICHMOND**, *Secretary*, General Radio Company, 30 State Street, Cambridge, Mass. **CHARLES P. FISKE**, *Assistant Secretary*, 1775 Broadway, New York, N.Y.

## 1915

Although these greetings and sentiments are a bit late, I still wish you all a successful and enjoyable 1938, with the hope that you had very happy Christmas holidays with your families and friends. There is still plenty of chance for 1915 to do its part for the Alumni Fund Campaign. For what Technology has done for us, Technology has asked little in return. Alumni loyalty entails no debt, but we should be proud of our chance to help in this noble and worthy cause. Give yourself the satisfaction, the pride of having helped. The fund is progressing

steadily but slowly. We Must Not Fail! Send your check now. On January 10 more than \$230,000 had been subscribed. Of 472 men in 1915, 40 had subscribed \$4,205 — an average of \$105.12 per donor, or \$8.90 per capita. This is 8.45 per cent of the Class. Send your check now.

Alumni Day this year will be on Monday, June 6. This is the last year in which the Institute will hold classes in the Rogers Building. Accordingly, registration, which has always taken place in Cambridge, will occur in the main lobby of Rogers Building. At noon, brief farewell exercises will be held there. The Alumni Dinner will be at the Statler that evening (June 6), at which time the Stein Song will be made more of than in the past. — Good news! The Class will hold a cocktail party before this dinner, similar to the party we held a year ago. It will be free to all classmates and their guests. Details will be announced later, but make your plans now to be there with the old gang.

It is sad to record the passing of our classmate and friend, Paul Connor, who died suddenly at his home in Enfield, Conn., on October 26. Bill Brackett of Boston, Paul's brother-in-law, and Ted Brown of Hartford were kind enough to notify me and to represent the Class at Paul's funeral. I wrote to Mrs. Connor to express our sincere sympathy in her loss and to offer her comfort in the memory that we shall all miss Paul's cheerful spirit at our reunions and his class interest and generosity.

It's always nice to meet our good old friends. In Chicago recently I unexpectedly saw Jerry Coldwell and enjoyed a breakfast with him. He is still busy flying around the country for Ford, Bacon and Davis, Inc. In Detroit, I talked with Loring Hall, whose son, Chuck, is now a freshman at the Institute. Of course on the way East, I spent an evening with Gabe and Mrs. Hilton in Buffalo. I've spoken so often of their kindness and enthusiasm in entertaining me so generously that suffice it to say this was another successful evening.

Ken Kahn sent a clipping from the *Los Angeles Times* of November 14 showing a picture of Bob Haylett, as chairman of the Union Oil Company's safety board, awarding a prize trophy. Bob looks the same — a little heavier and a little less hair. — The absence of notes must have aroused some concern, for there follow contributions from several classmates. Let's have more. From 302 East 18th Street, Tulsa, Okla., writes Bill Holway: "I am still engaged in consulting engineering in the Southwest and, in October of last year, formed a partnership with H. C. Neuffer of Albuquerque, N. M. Mr. Neuffer (University of Idaho '15) has for many years been assistant engineer for the United States Indian Irrigation Service and was designing engineer on the Coolidge Dam and later in charge of construction. In October of this year, the firm of Holway and Neuffer was chosen by the Grand River Dam Authority as consulting engineers

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for the twenty-million dollar hydroelectric project at Pensacola, Okla. We are now engaged in preliminary plans on this work. In addition to acting as our office manager, Mrs. Holway has recently completed a textbook for high school English students which has been accepted for publication. Our oldest son, Donal, graduated from the University of Chicago in 1937, in physics, and returned this year for postgraduate work. Our daughter, Charlotte, entered Radcliffe College this year. Our second son, William, will graduate from high school this year. He expects to enter Dartmouth next year and will enroll in Tech later for engineering. I certainly want to join in the cheering for Marshall B. Dalton. It is fine to have a member of our Class as president of the Alumni Association, and I feel sure he will fill the office well." Our best wishes for success to Bill, a real engineer and a grand classmate. What a family he has!

From the American Bakers Association's press release: "The appointment of Dr. James A. Tobey as Director of Nutritional Education for the American Institute of Baking was announced by L. J. Schumaker, President of the Institute, at the annual meeting of the American Bakers Association in Kansas City on October 27th. Dr. Tobey will have an office at 9 Rockefeller Plaza in New York City. For the past eleven years Dr. Tobey has been Director of Health Service of The Borden Company of New York. He is a graduate of the Massachusetts Institute of Technology, where he received his bachelor's degree in 1916 and the doctorate of public health in 1927. He has served as a city, state, and federal health official, as secretary of the National Health Council, and as Associate Editor of the *American Journal of Public Health*. He is now president of the Westchester (N.Y.) Tuberculosis and Public Health Association and a member of the executive committee of the New York State Tuberculosis Committee. Dr. Tobey is the author of a number of popular books on food and health, and is a frequent contributor to popular and technical magazines. He is also visiting lecturer at several universities, and is a Fellow and Life Member of the American Public Health Association, an Associate Fellow of the American Medical Association, and a member of various other professional societies and commercial associations. In the milk industry Dr. Tobey was concerned chiefly with professional and public relations. As pointed out by President Schumaker, he brings to the baking industry a rich and successful experience in this field." More congratulations — to good Jim Tobey for his new position. It sounds splendid and with Jim's experience and background he is well qualified to succeed in his new position.

In addition, Jim writes: "I hope that you and any other members of the Class who are in this city will drop in and see me whenever possible in my new office in Room 1824, Number 9 Rockefeller Plaza, New York City, where I shall be



## 1915 Continued

located for at least the next year. A. T. Glassett '20, chairman of the New York committee in charge of fund raising for the new gymnasium, has asked me to serve as chairman for the Class of 1915 in connection with this campaign, and I have, therefore, appointed a committee consisting of Charlie Williams, Louis Zepfler, St. Elmo Piza, and Charlie Parsons, to serve with me, although they don't know it yet. Another interesting and more honorable appointment that has just come my way is to the Visiting Committee of the Department of Biology and Public Health at M.I.T. I was at the Institute last September during the Food Technology Conference, at which I delivered an impassioned address. Since that time I have been in Dallas, Texas, at the Milk Dealers' Convention; in Kansas City at the Bakers' Convention; and in Chicago; but I did not run across any of our classmates during my peregrinations. . . .

"At the excellent M.I.T. banquet in New York . . . it was suggested that a representative of each Class send to The Review class representatives a list of the members who were present. I am, therefore, transmitting the following names with their addresses and business connections: M. W. Cowles, Hackensack Water Company, New Milford, N.J.; S. L. Willis, market consultant, White Plains, N.Y.; Fred L. Cook, John Robertson Company, Inc., 133 Water Street, Brooklyn, N.Y.; F. E. Parsons, Alfol Insulation Company, Inc., Chrysler Building, New York City; Don Perin, Care of Smith and Gregory (power brake engineering), 327 West 19th Street, New York City; James A. Tobey, 9 Rockefeller Plaza, New York City. Incidentally, Charlie Williams was unable to serve on our class committee in connection with the fund raising, so we appointed Thomas C. Pond in his place."

Walter Africa has recently been elected president of the Technology Club of Philadelphia. Let's hear from you, Walt, on what you are doing in Philadelphia. — As you probably know, Gabe Hilton is manager of the Buffalo office of Brockway Motor Company, Inc., 1765 Main Street. At the truck show in Newark in November, Gabe and Mrs. Hilton met Jimmy Franks and Rogers Lord. — Laurie Geer is with Celo Company of America, Inc., Tampa, Fla., whence he writes: "Your letters of February 27 and April 10 concerning the 1915 class reunion have reached their turn to be answered. I hope that you will accept my apology for the lateness when you understand that we have been in the throes of moving our plant, a process which occurred in the peak of our season. So my private correspondence and personal affairs have been neglected. As a matter of fact, I had the impression from your letter of February 27 that you were going to send me a list of names in several of the states in the Southeast, but evidently I was mistaken. If it is not too late, will you now receive my sincere offer of assistance and send me the list, together with whatever directions you have for

contacting the names? From now on I think it should be possible for me to devote some time to our 1940 reunion and will gladly do so. With kindest regards and the promise not to put off answering your letters in the future." Thanks, Laurie, for your good letter and your kind offer to help on the reunion.

Jim Neal, President of Norton Laboratories, Inc., at Lockport, N.Y., in a letter about some personal matters, sends his regards to all his friends in our Class. — Harold Pickering is well started in his new work in Ithaca, N.Y., selling and servicing heating and air-conditioning equipment. I had expected to stop there and see him but could not make it, so, considerably, he wrote me a reminder with a brief description of his new work. I know what it means to begin all over again, and I wish Pick every encouragement and success. The generous indulgence of The Review Editors in giving us all this space offsets the lack of column for the past few months. But help! help! — don't leave me for next month.

— AZEL W. MACK, *Secretary*, 40 St. Paul Street, Brookline, Mass.

## 1916

I hope that the following newsy letter from Arvin Page, located at Winston-Salem, N.C., will serve as an inspiration and example to the many delinquent classmates who owe your Secretary letters. Arvin writes as follows: "New Year's Day, 1938. This being the first day of a new year that promises to provide plenty of spare time for personal correspondence, I decided to experiment a little and try something that I have never done before, that is, write you a letter. I may have picked a poor day for my maiden voyage on the sea of rhetoric, owing to the fog that invariably envelops the neighborhood on the day following New Year's Eve, but, having the inclination, I felt I had better act immediately because tomorrow never comes. I am still here at the old stand in Winston-Salem, doing what I can to make this old world a better place in which to live by installing as much air-conditioning equipment as we can find places to put it. It is rather remarkable to note how little coöperation we are getting at this time from the consuming public in this important movement. As this is not a sales letter, I will just mention that we manufacture and install equipment for humidifying, heating, ventilating, and cooling. So far, we have confined our activities to industrial plants.

"Jeff Gfroerer is now located in a suburb of Winston-Salem, and we get together once in a while to fight the War over again. He is the Dodge representative in this district, and he is flooding the two Carolinas and Virginia with these cars. As a side line Jeff goes in for horticulture in a big way. For instance, the last time I saw him he was engaged in transplanting a whole grove of stolen pine trees. To be sure, he was working under the personal supervision of his boss but he was doing a very creditable job.

The trees were uniformly spaced, three to each flower box. Last summer I took a few days off to make a tour through the North Carolina Mountains and to shoot a few golfs. One of my stops was naturally at Linville, as the golf course there is justly famed throughout this part of the country. While there, I ran into Nelson MacRae, who owns and operates this summer resort. I did not have time to much more than say 'howdy' because Mac was in the midst of promoting a horse show that afternoon and had no time for idle chatter. Mac has a beautiful golf course, and it must require a great deal of his attention, as he is one of the best golfers in the state. If you or any of the 1916 golfers are ever in this section between June and October, drop around; I will always welcome any such excuse to go back up there to try to bag a par. I will call no names, but if some of the golfers that rambled over the course at Saybrook try out this course, they had better be well supplied with balls, very well supplied. There is a trout brook (a trout was caught in it in 1898) that crosses the fairway 17 times, and the rough consists of almost impenetrable forest. The first 18 holes are easy to find but the 19th is rather difficult to locate.

"On another occasion last summer I had to make a business trip to Scranton, Pa. As I dislike to ride the Pullman, my wife and I drove up. We left here after breakfast and spent the night in Wilkes-Barre. As W-i-l-k-e-s-B-a-r-r-e spells Jap Carr to me, I felt I would at least take a look at him before leaving, so on the next morning, after a very late breakfast and reading the paper and doing some shopping, I drove up to his office. It was then about ten o'clock and I thought Jap would have had time to go through his morning mail. When I asked the girl at the reception desk for Jap, she replied: 'I am sorry but Mr. Carr is not in now. He is usually here by ten-thirty or eleven.' (I later found out that he leaves at two or three to play tennis.) I tried to find out if he took more than two hours for lunch, but this information eluded me. I decided to wait a few minutes and, fortunately for me, Jap was running a good bit ahead of schedule, for he came in shortly.

"Jap is running a biscuit factory, and from all indications he is pushing it ahead in grand style. He says that he is making all kinds of crackers and I have no reason to doubt his word, although I saw no concrete evidence to prove it. I never have been able to acquire the ability to slip subtle hints into a conversation. All my hints are so broad they are plainly visible to anyone within earshot, but try as hard as I could, I never did get to see a cracker or biscuit, much less taste one. Before I left, Jap invited us to have dinner with the family the next night. Naturally the invitation was accepted and we had a truly delightful time, a fine meal, and then several hours of reminiscing on the lawn under the stars. Jap made me a map so that we could find his house, which is up in the hills quite a way from the city. We

1916 Continued

found the house by a process of elimination, after roaming all over that part of the state. I would flunk him in map making.

"You and probably all of the other brethren who were at Saybrook in 1936 can recall all of the gruesome details of Judd Vile's cyst operation. I am very glad to be able to report that Judd will have another topic of conversation at the next gathering of the clan. He had his appendix removed last summer. If any of the gang are a bit uncertain regarding the fine points of an appendectomy, let him come to the next reunion, he will hear plenty from Judd. Judd is now manager of P. and F. Corbin, New Britain, Conn. . . ."

The following article concerning classmate Harold Larner appeared in the *Boston Evening Transcript* of December 29: "Aboard the United States gunboat Oahu, now on its way up the Yangtze River, to start salvage operations on her tragic sister-ship, the gunboat Panay, is a former Cambridge resident, Lieutenant Commander Harold Larner. He is attached to the naval construction corps, and will superintend the work of attempting to retrieve valuable secret naval papers from the Panay safe. The officer was graduated from Massachusetts Institute of Technology in 1916. He had specialized in naval architecture, and entered the U. S. Navy during the World War. His work has been mostly with naval design, particularly the design of submarines."

Some of the Class will remember Ralph E. Forsyth, II, who did not complete the four years at the Institute. The *Boston Evening Transcript* on December 27 carried a notice of his marriage to Miss Kathryn Cameron of Wellesley, Mass. The wedding took place on Christmas Day in the Brookline Baptist Church. — Arthur K. Stewart, II, who for the past 18 years has been with the Lonsdale Company of Providence, R.I., latterly as general superintendent, has joined the American Thread Company as agent of the company's Westerly mills at Westerly, R.I. — JAMES A. BURBANK, *Secretary*, The Travelers Insurance Company, Hartford, Conn. STEVEN R. BERKE, *Associate Secretary*, Coleman Brothers Corporation, 245 State Street, Boston, Mass.

## 1917

At the risk of having the notes for this month sound as though they had been lifted bodily from the *American Paint Journal*, your Secretaries are delighted to report that a recent issue of the above-mentioned publication carried an almost life-sized cartoon of Stan Dunning riding on a Staten Island ferryboat, together with a biographical sketch of some length which says in part: "Mr. Dunning has been very active in paint trade affairs, having served as a member of the Executive Committee of the New York Paint, Varnish and Lacquer Association from 1932 until 1935. In 1936, he was elected secretary of that organization before becoming president for the current year. He also served as president of the Mandis

Society in 1933; chairman of the Water Paint Manufacturers' committee in 1933; member of the Paint Industry Recovery Board, 1933-1934; and a member of the Executive Committee of the National Paint, Varnish and Lacquer Association from 1933 until 1937." In his spare time it appears that Stan is sales manager of The Muralo Company, Inc., Staten Island, N.Y.

Also from the *American Paint Journal* we learn that Dean Parker has recently been elected president of the Philadelphia Paint and Varnish Production Club. He is now associated with the Krebs Pigment and Color Corporation, a subsidiary of the Du Pont Company. For some of this information thanks are due Frank Maguire, another member of the Class active in the paint industry, who writes as an official of Beck, Koller and Company, the world's largest producer of surface-coating synthetics. For further information on Stan Dunning, thanks are due Dean Parker and for information about Dean Parker, our thanks to Stan Dunning! What is this game, and how about somebody sending us a picture of Frank Maguire to complete the pass?

From Stanford University comes a note from Brian Curtis, indicating that he is a research biologist for the California Division of Fish and Game. Appleton is about to publish a book of his, entitled, "The Life Story of the Fish," which presents, in simplified form, "the most interesting features of the biology of fish for the edification of the angler and lay reader." In box-score fashion he continues: "Wife, one. Children, none. Regrets, none." — Stanley K. Cooper is in charge of the specification department of Johns-Manville, a job which apparently keeps him moving about the country to some extent, if the difficulty of catching up with him at the New York office has anything to do with it. — Irving Crosby was reported as having been in Denver late in November on his way to Conchas Dam in New Mexico for a meeting of the consulting board. While the report is lacking in detail, it indicates that Alvah Moody was at least seen by Irving, supposedly in Denver. No further information has been forthcoming.

Notes have come in for Ray Stevens, in connection with the Alumni Fund Campaign, from Penn Brooks and Claude Roberts. Penn reports from Chicago that he has just discovered that Bill Cargill is president of Ray-O-Vac Company in Madison, Wis. Claude writes at somewhat greater length from San Marino, Calif., where he is now living, after being transferred by the Petroleum Rectifying Company from its affiliate in St. Louis. He reports in no uncertain terms that nothing short of war or revolution will get him east of the Rockies again except on visits. A third child, Thomas Stovall, joined the Roberts ranks in June, thus scoring one for Missouri, one for California, and one for Texas. With Mrs. Roberts from the District of Columbia and Claude from Alabama, the family, as Claude suggests, begins to take on an all-America flavor. But there are a few

states left! — RAYMOND STEVENS, *Secretary*, 30 Charles River Road, Cambridge, Mass. PHILIP E. HULBURD, *Assistant Secretary*, Phillips Exeter Academy, Exeter, N.H.

## 1918

Like a youngster who takes a mean advantage of the amount of food in your mouth, these notes will take a mean advantage of your last-minute income tax frenzy (yes, there's a connection between the amount of food and the tax) to present figures that are to the point but downright inaccurate by the time you read them. Postcard from sections south, west, and north, the vote on reunion plans, as of the date of writing, is three to two for a mixed reunion; three to one for "we'll be there." This includes Michigan, Ohio, Maryland, and points south. An early June date is exactly tied with a late June date — the Secretary and Assistant Secretary betting parsimoniously on the outcome. Heads nod in enthusiastic confirmation of Rhode Island or Connecticut as the locality, with one windy shout for Chicago as first choice.

Ten years ago we devoted the ardor of our preparation to editing that little book, "published this once anyhow!" called, "The Eighteenth Amendment." So whether there would be an eruption of reticence over its reappearance at our 20th reunion was a matter of some personal moment. Returns from the nearer precincts are six to one in favor. If elected, we promise . . . !

Somebody in Worcester returned his card unsigned. Mike Flett did the same thing, but Jim Farley marked the card, Hamburg, N.Y., and the class detective, knowing no one else stemmed from Hamburg, compared handwritings, and so on, thus effecting an identification that will withstand legal examination. In making your own plans, here are a few surmises that will leave you with sweet composure of spirit. New England in June is sometimes very, very wet. Bring your rubbers. It is sometimes very, very hot. Get the moth balls out of the old white flannels. The weather bureau records show it can be mighty cold. Don't put the winter coat away yet. If this seems like being wrenched by harsh circumstances, it also means that if we have a mixed reunion, maybe those multitudinous things women cram into suitcases for a foot-loose weekend make sense after all. So don't fret and fidget. Put your belongings into a bandanna handkerchief at the end of a stick, and come on. — F. ALEXANDER MAGOUN, *Secretary*, Room 5-117, M.I.T., Cambridge, Mass. GRETCHEN A. PALMER, *Assistant Secretary*, The Thomas School, The Wilson Road, Rowayton, Conn.

## 1921

With spring in the offing, why wait for that seasonal housecleaning to unearth your subscription card for the Alumni Fund Drive? Dig it out now and send it to Cambridge.

A recent directory of the Alumni Association lists George W. Spaulding as secretary-treasurer of the M.I.T. As-



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sociation of Baltimore, so, on a recent trip to Maryland's Monumental City, we visited the offices of the Pennsylvania Water and Power Company in the Lexington Building to corner Whit, whom we hadn't seen since graduation. Except for acquiring some added weight along with most of us, the passing of time has changed him little. The ever present smile and the good old sense of humor are still in evidence, whatever one might be led to expect of an assistant general superintendent of a utility!

On leaving the Institute, Whit first spent some time with the Plymouth Electric Light Company as a result of his thesis work. Then, in company with Cory Kohl, he was with Century Electric Company in St. Louis. Fourteen years ago he came East with the Pennsylvania Water and Power organization and, outside of some time spent at their Holtwood, Pa., development, he has since made his headquarters in Baltimore. He married a St. Louis girl, and they have two daughters — Elizabeth, who is 10 years old, and Miriam, aged two. — Anyone stopping in Baltimore is sure to meet one or more of the 1921 contingent lunching at the Engineers Club. Beside Whit there are Adolph Denbin, who is with the Baltimore Transit; Curt Gardner with the Liberty Mutual Insurance Company; Harry Ramsay with Phoenix Mutual Life Insurance Company; Mel Rose with the phone company; Charlie Thornton with the Maryland Public Service Commission.

Whit had plenty of 1921 news and, were it not for the excellent entertainment he and his Johns-Hopkins cohort — Brother Rusk — provided, we might have gathered more data. Scattered notes include reports that Al Calvert, Phil Nelles, and Charlie Williams are with New England Power Company, Phil in the industrial gas division and Charlie as assistant to the President. Harold Blomquist is an engineer with the United Electric Railways in Providence, R.I.; Tom Dutton with a government agency in Washington, D.C. Tom Card was reported to be located on Long Island near New York City. Many thanks, Whit!

Among the welcome Christmas notes: Stuie Nixon's from a new address, 114 West Muskegon Avenue, Muskegon, Mich.; Connie Nelson Lees's from 62 Wildwood Street, Winchester, Mass., which elicits congratulations on the inclusion of the name of Malcolm, Jr., besides that of little (?) Bruce; Harold Stose's from a new address, 3421 Douglas Road, Toledo, Ohio — but we won't mention that he's with Owens-Illinois Glass Company until he makes good the promise to explain how the Portsmouth, Ohio, floods moved him over! — Other recent changes of address include: Walter W. Anderson, IV, 2 Rogers Avenue, Lynbrook, N.Y.; Arthur N. Brambach, XV, 36 Bennett Avenue, Binghamton, N.Y.; Willard A. Brolin, Jr., II, 315 North Rockford Avenue, Rockford, Ill.; Harry Cole, I, 5336 Enright Street, St. Louis, Mo.; Frederic B. Dadmun, XV, E. I. du Pont de Nemours, 111 West

Washington Street, Chicago, Ill.; Geoffrey J. Greenfield, X, Westoe Lodge, Mitchell Avenue, Newcastle-on-Tyne 2, England; Mark V. Hamburger, X, 4707 Connecticut Avenue, Washington, D.C.; Dugald C. Jackson, Jr., VI-A, 427 North Kenilworth Avenue, Oak Park, Ill.; Nellie Jefferson, IV, 3717 Crestline Road, Fort Worth, Texas; Jackson W. Kendall, XV, 1295 Elizabeth Street, Pasadena, Calif.; Winthrop E. Luke, IV, 19 Warner Street, West Somerville, Mass.; Joseph Wenick, X, 113 Hedden Terrace, North Arlington, N.J.; Dr. Merrill A. Youtz, V, R.F.D. No. 9, College Hill Station, Cincinnati, Ohio.

In writing to any of the above, please tell 'em you saw it in *The Review* (adv't.) and gently remind them to send a note to their Secretaries now! — **RAYMOND A. ST. LAURENT**, *Secretary*, Rogers Paper Manufacturing Company, Manchester, Conn. **CAROLE A. CLARKE**, *Assistant Secretary*, 10 University Avenue, Chatham, N.J.

## 1923

Clyde P. Matteson, XVI, reports that he has been residing at 1300 Grand Avenue, Laramie, Wyo., since the fall of 1935, when he was retired from the United States Marine Corps, in which he held the rank of captain, as a result of wounds received in action. — And under a relatively new address, 430 Edgewood Road, San Mateo, Calif., I have the following: "At a meeting of the senior partners of Harmon, Harmon and Harmon, Christopher Morrin Harmon was appointed junior partner, effective November 7, 1937." All of which adds up to congratulations being in order to Frosty Harmon, X.

There will probably be a reunion in June, and you had better be thinking about it. Your ideas will not only be welcomed, but they will fill what is, as these notes are written, an appalling void. — **HORATIO L. BOND**, *Secretary*, 18 Jefferson Road, South Braintree, Mass. **JAMES A. PENNYPACKER**, *Assistant Secretary*, 96 Monroe Road, Quincy, Mass.

## 1924

The Secretary regrets to record the death of Jack Duffy in New York on January 19, the result of complications following a mastoid operation, according to a note received from G. F. DiSomma. — Pleasanter vital statistics of the Class include a report from Bill Coleman, via Paul Cardinal (north Jersey class correspondent, located at 14 Albion Street, Passaic), that the two Coleman girls now have a young brother, born in September. All of which means that Bill will have to work a bit harder for Congoleum-Nairn in Kearny. — Via Bill Correale, we have received an unusual announcement from Gordon and Clara Harvey, Inc., proclaiming a stock dividend on December 17, to be known as Roberta, sister to Patricia Marie.

Another note from Bill Correale contained the following clipping from *Engineering News-Record*: "Samuel Schulitz,

assistant professor of mechanics and hydraulics at the Colorado School of Mines, has been appointed engineer to a special advisory committee on federal soil conservation research. Professor Shulitz has done hydraulic research for the Bureau of Reclamation in Denver and for the U. S. Engineer Corps at the Vicksburg Hydraulic Laboratory." — **FRANCIS A. BARRETT**, *General Secretary*, 50 Oliver Street, Boston, Mass.

## 1925

The class letter of last October has brought a response from a little over three per cent of the 1925 men. What is the matter with the other 97 per cent? Are they too busy to take five minutes and tell us what they are doing? Another matter requires the attention of the men of 1925, also. Do you realize that we are trailing about 50 other Classes in the Alumni Fund Drive? To date, only about seven and one-half per cent of the Class have contributed.

Some news items have reached me during the past month: Professor Locke '96 informs me that J. G. Creveling, XII, is back home in Nashville, Tenn. He changed his position in Bolivia last spring, but at the altitude where he was located his family had a bad spell of paratyphoid in May, and even though they went down to the coast for over a month, they did not recover entirely and suffered a recurrence of the malady when they returned to the high altitude. Creveling finally decided that it would be unwise for him to continue, and they journeyed slowly across the continent and up the east coast, taking almost two months, arriving home the latter part of October. In passing through Havana, he talked over the telephone with Al Sherman, III, and shortly after his arrival home his brother Don, '24, made a visit from his work in Mexico. This was the first time the two brothers had been together in nine years.

The *New York Times* on December 19 carried the announcement of the engagement of Miss Helena Aphorpe Thompson, daughter of Mr. and Mrs. Henry S. Thompson of Concord, Mass., to Louis Long, Jr., X-A. Long is at present studying for his doctorate in the chemistry department at Harvard. — A news item in the *Boston Globe* announced the marriage of George Baer Connard, XIII, and Miss Clarabell Quick, eldest daughter of Captain and Mrs. Richard Quick of Bath, Maine. The wedding took place at noon on January 1 in Grace Episcopal Church. A reception at the Hotel Sedgwick immediately followed the ceremony. After a wedding trip to the Mediterranean, Mr. and Mrs. Connard will make their home at 21 Andrews Road, Bath. Following employment in the shipyards in Glasgow and at Werks-poor, Amsterdam, Connard became associated with the Bath Iron Works Corporation in 1929 and is now assistant to the president.

I. M. Symonds, III, writes me from Avalos, Zacatecas, Mexico, where he is still operating the flotation plant for the



## 1925 Continued

Compania Minera de Penoles. After nearly three years on the job he decided to take a vacation and spent the month of November in Arkansas. During that time he just took life easy, thoroughly enjoyed himself, and put on some weight. On the return trip to Mexico his wife and younger boy were taken sick near the border and he had to stop for a week until everything was cleared up. During the past year, Sy has just about rebuilt his mill and is doing a good job recovering gold, silver, lead, and zinc, from a variety of ores which are usually rather difficult to concentrate.

I have been informed that Charles R. Wexler, VI, is no longer located in Chicago but is now at Owensboro, Ky. — Philip G. Evans, XI-B, has moved from Syracuse, N.Y., to Bridgeport, Conn. — John E. Ostrander, Jr., II, has been transferred from Washington, D.C., and is with the Battle Force, U.S.S. *Saratoga*, San Pedro, Calif. Also, he should now be addressed as commander. — F. LEROY FOSTER, *General Secretary*, Room 6-202, M.I.T., Cambridge, Mass. HOLLIS F. WARE, *Assistant Secretary*, 17 Green Road, Medford, Mass.

## 1926

Willard F. McCornack is saved! He recently took the necessary vows to be a member of the Class of '26, after having been, for a number of years, officially and unhappily identified with one of the more disreputable adjacent Classes. Mac at present is studying for a doctor's degree at Harvard and has finally reached the stage where he is quite willing to admit it.

Herb Kaufmann was really touched by some of the recent secretarial japes and showed it by writing a letter. "I have worked," says he, "for the Mutual Chemical Company of America since leaving the Institute and am now in charge of the Jersey City plant of the company. The main products of the company are chrome chemicals — chiefly bichromate of soda. At Jersey City oxalic acid is also manufactured. My work has been most interesting and varied. I have been unfortunate in not coming in contact with other '26 men frequently. Bill Latham, as you no doubt know, is Commissioner Moses' righthand man. Don King was with Union Carbide in New York, the last time I saw him. Wick Eddy is with Texas Gulf Sulphur Company — I had a line from him last week in which he said he had been in Pittsburgh recently and saw Mark Greer. You didn't ask for any personal history, but I have been married for nine years and have a daughter, aged seven, and a son, four and one half. I hope the Alumni Fund Campaign is picking up — the poor showing for New York prompted me to increase my donation." There, Gentlemen, is spirit, as well as information.

The Secretary has been informed somewhat vicariously that L. E. Jenkins is helping build submarines for the Navy in New London, Conn., and that Smith D. Turner, Jr. — sometimes known as Sparkie — is with the Humble Oil and

Refining Company in Goose Creek, Texas. He has a child, eight years old. Sometime we should like to hear from Turner about what kind of metropolis Goose Creek is; the name stimulates our imagination. — We further hear indirectly that Dick Cory has a men's clothing business in Oakland, Calif. — Another address that is worth noting is that of Dave Harrison: He lives on Clocks Boulevard in Amityville, Long Island, N.Y., a place, we take it, both timely and friendly. — Ken Lord has finally pulled up stakes in Birmingham, Ala., and moved his entire show, business and all, to Greenville, S.C., where no doubt, in behalf of the Reliance Electric and Manufacturing Company, he will quickly become an accomplished sandlapper.

Next month we hope to give you some semifinal figures on the Class's participation in the Alumni Fund Campaign. In the meantime, those of you who have not contributed can help by sending in your subscriptions. — J. RHYNE KILLIAN, JR., *General Secretary*, Room 11-203, M.I.T., Cambridge, Mass.

## 1928

From the New York *Evening Post* is a featured front-page article, headed, "Social Registerite Wins \$500 in Post's New Contest Series." With this article were two pictures of Harold C. Mathews, with captions indicating that he is an M.I.T. graduate, director of the hydraulic-jack firm of Richard Dudgeon, Inc., and the statement: "I spent six full hours on the puzzle that brought me the money. I looked up a lot of the chemistry and engineering terms in the process." Nice going, Harold, and we'd say that was quite a return for six hours' effort. — Arnold A. Archibald, whose marriage to Miss Clara West Butler at a candlelight ceremony on Christmas Eve was mentioned in February, is now living at 1257 Dennison Avenue, East End, Pittsburgh, Pa.; Arnold is employed by the Jones and Laughlin Steel Company.

Your Secretary has been making a point of talking to alumni of other colleges, including men from Dartmouth and Princeton, about the matter of calls for funds. What amazes me is the fact that a lot of colleges and alumni organizations go after funds regularly, and a very large proportion of the men shell out — and I don't mean postage stamps. At Technology such drives for funds are very rare and then only for unusually worth-while projects, such as the proposed new gymnasium, which is so sorely needed. The point is that there are too many fellows in our Class who are letting someone else do it or who at least have put the thing off for a better day. It strikes me that when a drive like this does come along we ought to have enough loyalty to the Class and Technology to give and give until it hurts a little bit. What says '28? We've been challenged on this drive by the Class of 1926, and they're giving us the heat!

Next month we'll have some hot news about that most famous of all reunions — our 10th — coming up on June 3, 4, and

5. Our perennial rival, the Class of 1926, has set the alumni reunion record to date with a turnout of 108 men at their 10th reunion, two years ago. We want that record ourselves; we've got the men and the enthusiasm to do it. So hold the week-end of June 3, 4, and 5 open for your Class — your 10th reunion. Let's make it over twice as good as the 5th reunion, although a lot of us thought that was tops! Right now let us say that if you haven't enough college try and class spirit to be willing to hock your watch or your best Sunday pants so you can get to your 10th reunion through fire or high water, then we say you're a brown-bagger and a penny-squeezing, mercenary materialist with no more gregarious instinct than a boll weevil.

It looks now as though your reunion committee would be able to schedule a swell spot halfway between Boston and New York City, on Long Island Sound. This will give the New York, New Jersey, Connecticut, Pennsylvania, Western and Southern delegations a better break, and we're hoping for big things. So begin now, while there's time, to sneak a buckerola or two out of each week's envelope before you turn it over to the wife. Otherwise, if you wait, the money will go for junior's new shoes, sure as shootin', and you'll be left at home gnashing your teeth and biting your nails, with nothing but some fast-dimming undergraduate memories to haunt you. — Don't forget — June 3, 4, and 5. Let's go. — GEORGE I. CHATFIELD, *General Secretary*, 5 Alben Street, Winchester, Mass.

## 1929

Another month has gone by (I could almost say another year) with no letters from any of you to tell us what is new. — A recent summary of contributions to the Alumni Fund showed that out of 801 Alumni of the Class of 1929, only 7.68 per cent contributed, and that the subscriptions of those 62 men averaged \$30.89 each. Not a very proud record. However, I'm sure we will do better before very long, for a few subscriptions that have been reported since that summary was made were quite generous and should help our average. But unless more of us get back of this worth-while campaign, our per capita subscription of \$2.39 up to January 7 is not going to be much increased. Let us look at the demands which face other college Alumni from time to time and welcome this opportunity of taking part in the creation of proper facilities for a recreational and athletic program that will benefit the student body to such a degree that the Institute can rank as ideal among the colleges of the country. Already, our system of supporting athletics for the benefit of the student, and not the student for the benefit of our athletics, is receiving recognition as an ideal to which colleges which have tired of commercialized athletics are turning. Do not forget that any amount you may subscribe will be appreciated, not only by the students who benefit but by the Class.

1929 Continued

Word comes to us that Bill Slagle, XV, is engaged to Miss Ellen Agnes Mekkel-sen of Arlington, Mass. The announce-ment was made in the Boston papers of December 24. Congratulations from the Class, Bill. Let us know when the wed-ding will take place. The 1935 edition of the Register of Former Students lists Bill as assistant to the President of Dewey and Almy Chemical Company in Cambridge, Mass. — George Meyers, VI-A, recently obtained a patent on a method of man-ufacturing electrical cut-outs. The patent was assigned to the General Electric Company, for whom George works. Con-gratulations, George. We hope that a raise in salary goes with the patent, or maybe we should not suggest such things.

This year the Christmas card of Jo Llanso, II, came from Buenos Aires, Argentina, where he has been located for the last year or so. Adam Stricker, IX-B, sent his card from New York City, where he is probably still on the staff of the President of General Motors. Ralph At-kinson, IX-A, sent a card from Los Angeles, where he is one of Eastman Kodak's staff servicing the motion pic-ture industry — if I have it correctly. — Joel Whitney, II, sent his card from his old address in Nashville, Tenn., and announced his promotion to head of his department in the company for whom he has been engineering General Electric air-conditioning installations these past few years. — EARL W. GLEN, *General Secretary*, Box 178, Fairlawn, Ohio.

## 1931

You know, there's something very strange about letter writing. The average members of the Alumni — and I have reason to believe that members of our Class are no better than average, at least as far as letter writing goes — will cheer-fully sit down and send along their hard-earned bucks for the new recreational buildings, but to send a few notes con-cerning their past, ah, that is asking too much. This situation is all the more paradoxical when we consider that there is undoubtedly much more past than there are bucks. Such a pile of rot to start the notes, say you? Well, you know what to do about it. I'm in the same class as you on writing, and the less I write in these columns, the better for me and the better for you. But why appeal to reason on such a subject? Obviously we can't arrive at any conclusion, especially when we consider that better minds than ours have wrangled over this thing to no avail.

Ed Heffernan sends word that he is now located in Rutland, Vt., having been transferred to that district by the Carborundum Company last August. Prior to that he was covering the ter-ritory around Boston. Ed is still unmar-ried and has no prospects of changing that state of being. — The New York City *Journal of Commerce* provides us with the news that Lee Kolker is the head of the Elko Chemical Company. The firm was recently organized and has its plant in Newark, N.J. Kolker became affiliated with the Mathieson Alkali Works, Inc.,

in 1931, and remained on the sales and technical staff until 1936, when he was made New England district manager. He recently resigned from the organization to aid in the formation of the Elko Company.

The newspapers tell us of the engage-ment of Miss Dorothy M. Kuhn to Gordon D. Shellard in Ridgewood, N.J. Gordon is with the actuarial division of the Metropolitan Life Insurance Com-pany. In Reading, Mass., Mr. and Mrs. James R. Mercer have announced the engagement of their daughter, Miss Phoebe F. Mercer, to Gordon L. Col-quhoun of Andover. Colquhoun is associ-ated with the Andover National Bank. — From New London we hear that Miss Matilda Anne Belcher of that city re-cently became the bride of Morris R. Swicegood, who is an architect in New York City. — Don't forget to include that pledge card with the newsy letter that you're going to write. — BENJAMIN W. STEVERMAN, *General Secretary*, 11 Glen-land Road, Chestnut Hill, Mass.

## 1933

The holiday spirit got the best of yours truly last month and by the time he submitted the notes for the February issue, it had already gone to press.

However, as there is no new news to my knowledge, this is what he had to say then: Early in December we had the annual dinner of the Technology Club of New York, which was a well-attended and interesting meeting. The Class of '33 was quite well represented, there being about 12 or 15 of us present. Although we swapped lots of stories during the course of the evening, yours truly became so interested that he forgot to take a pencil and paper and jot down most of the information. However, some of the peo-ple we did hear about were Sam Lambert, who is with the Shell Oil Company out in Oklahoma and is doing very nicely; Bruno Sbrega, who is teaching mathe-matics at the Holyoke Technical High School; Sysko, who is with Du Pont at Wilmington. It seems that radio tube engineering is the most popular profes-sion among our members in New York; yours truly was surrounded by Marshall Wilder, Joe Wetherell, and Bill Gray, not to mention the rest of the gang that are in this business.

I received a letter from John Longley several months ago and, in part, he re-lates: "Was transferred to Albany last April, doing engineering work. I work under the engineer of equipment, Mr. Wilbur, and was pleasantly surprised to find that his son was a friend at Tech, Warren Wilbur '34, VI. Warren was married a month or so ago, his bride being a native of Baltimore. Before I came up here I spent a year and a half in the switch room of the Elmira step-by-step dial office — work which was pleas-ant and which I enjoyed muchly. And Albany and the work here are both very enjoyable, but as you, too, have probably found out, though we all sort of guessed it long ago, we really only start to learn things when we get out of college! Was

in Rochester for a week-end a few weeks ago and dropped around to try and find some of the gang I knew to be there — Bob Cull, A.B. Fox, and Waite, and Lou Flanders — but was only able to find Dick Waite at home. He is married and has a bouncing baby."

And here's a portion of a letter from Emerson Norris, who, as we recently reported, has gone with Revere Copper and Brass at New Bedford, Mass.: "My job requires a knowledge of innumerable subjects; it is necessary for me to study most of the time I am home. Also, I am away quite a bit — dropped in at the Institute where I spent a great deal of time in the Metallurgy Department. Saw Morris Cohen, who is now doing fine work, they tell me, at his teaching job. He has been married nearly a year. I have been with Revere Copper and Brass, Inc., since August 15 and am in the tech-nical advisory department. There are two of us at this plant. Our function is to act between the research department and the sales organization. To read recent Revere advertising, you will find that we are 'trained engineers who can be assigned to study your most baffling problems.' What we do is to visit our customers and pro-spective customers and lend our 'expert' advice and experience in order to aid them in selecting the best alloy for their purpose, aid them in manufacturing and fabrication problems, and try to keep a jump ahead of our competitors. The territory we cover is New England. Dis-tances, of course, are rather short, so it is easy to get around. It is an extremely interesting job because there is always a new problem to work on. However, such a job requires a great amount of study in order to be able to talk intelligently to all our customers. At Thanksgiving time I made a few business calls while up in Portland. I stopped in at Central Maine Power to see Skipper Mertens. We had a great time talking over the good old days. He has a good job as distribution engineer. Apparently he takes care of all the engineering on substation and switch-board installations. He seems to be pretty well rooted in Maine soil after having been transplanted from Missouri."

Here's part of a letter from Nat Good-man that came in at the last minute and I thought might be of interest: "Per-sonally, I report a continued livelihood in the shirt business and am engaged in an industrial engineering capacity for S. Liebovitz and Sons, Inc., Myerstown, Pa., one of the larger manufacturers of men's dress shirts. My duties have mostly been around the installation of progres-sive assembly lines in the sewing depart-ments, and, I must add, the potentialities, as well as the problems, are great. News of the lads is scarce — Pearson writes occasionally from the Toronto office of Colgate-Palmolive-Peet, and Bob Ripin entertains with stories of English labor and German dates with two dictionaries. He is in England on business for Louis Marx, the toy manufacturer."

Well that's the story for this time. Don't forget you have a date for the first week-end in June — GEORGE HENNING,



1933 Continued

Jr., *General Secretary*, Belmont Smelting and Refining Works, 330 Belmont Avenue, Brooklyn, N.Y. ROBERT M. KIMBALL, *Assistant Secretary*, Room 3-108, M.I.T., Cambridge, Mass.

## 1934

When you are constantly traveling around the country, it is remarkable how many of your friends and acquaintances you encounter in out-of-the-way places. Possibly you trip over one, sprawled in the middle of a ski trail, or perhaps walk into a mill on business and find that the man assigned to show you around is one of your old pals, or again you settle yourself in a transport plane and discover a classmate in the adjacent seat. I was on the train coming back from Buffalo, the day before Christmas, and lurched into Dick Cavanagh having his breakfast in the dining car. I have seen very little of Dick since we were lab partners in freshman chemistry and brought the term to a glorious ending by compiling heaps of evil smelling chemicals and burning them on the top of the laboratory bench. Dick is now what might be termed "a man of steel." He is working for the Carnegie-Illinois Steel Corporation, where he is holding down the job of superintendent of the metallurgical division in one of the mills just outside Pittsburgh. From what he tells me of his job, both in the mill and outside, it sounds extremely interesting and has a good deal of the touch of adventure connected with it.

From Dick I hear that Ned Lucas is now working for Carnegie-Illinois in the advertising department. He was formerly with Batten, Barton, Durstine and Osborne, advertising, in New York. Ned recently became the proud papa of a baby daughter. Congratulations, Ned. Since I have mentioned Batten, Barton, Durstine and Osborne (if you can repeat that three times without slipping, you are not tight), I might say that that is the firm for which John Navas is now working. I ran into John and also Wilbur Foote at Bousquet's ski grounds at Pittsfield, Mass. Foote is living in Pittsfield and working in the plastics division of the General Electric Company. Navas was up with a party from New York and was warming up at Bousquet's preparatory to running the difficult Thunderbolt Trail on Mount Greylock. Incidentally, to those of you who are skiing enthusiasts and are within driving distance of Pittsfield, I recommend Bousquet's. It is an exceptionally fine combination development with seven trails of varying degrees of difficulty, 200 acres of open slopes (one of which is illuminated at night), and three ski tows. You have a chance to break your neck in various and sundry ways. But take a tip: Do not go up there on a Sunday when a snow train is being run from New York. Then the place resembles a cross between an Alaskan gold rush and the charge of the Light Brigade. Determined addicts sail between your legs or swoop down upon you with upraised poles with the apparent intent of impaling you on the end of them. No, stay away when the snow train is in.

There is such a thing as relying too much on Providence.

Another person I met unexpectedly is Paul Bencks. I found him in a restaurant in Holyoke with a timetable in one hand and a sandwich in the other, munching as fast as possible and casting furtive glances at the clock. We did not have much time for a tête-à-tête, but I learned that Paul is selling commercial paper for Weil McKey Pearson and Company of Boston, and that his address is 185 Sigourney Street, Hartford, Conn. But most important of all, Paul was married to Miss Virginia Larkum of West Hartford on January 22.

Congratulations to Mr. and Mrs. Cassius C. Belden are in keeping at this time upon the arrival of an eight and a half pound baby boy, Cassius Allen Belden, who arrived on December 5. — I received a note from Page Golsan, Jr., who informs me that Charley Clueck is with Ebasco out on the Pacific Coast and is doing the Lord only knows what. It sounds very mysterious, so we hope, Charley, that you will enlighten us. Bud Golsan is working for the New York State Electric and Gas Corporation at Plattsburg, N.Y., but he does not say what he is doing either. However, there is a picture of a little man at the bottom of the letter composed of lightning flashes, with an electric light bulb for a nose, entitled, "Your Electrical Servant." Is that your picture, Bud?

John C. Turnbull of Middletown, Conn., has just left for Houston, Texas, where he will be connected with the Schlumberger Well Surveying Company. After John finished at Tech, he continued his studies at Brown, where he received his Ph.D. — Society gossip has it that Mr. and Mrs. William Gilbert Ball, II, of New Rochelle, N.Y., recently entertained at dinner for Arthur Clarence Esslinger of Teaneck, N.J. Artie is still working for McCann-Erickson, Inc., advertising, in New York City, and at present is sinking his talons in the Talon Slide Fastener account — zipper to you. Bill Ball says he is being kept very busy showing the film, "The Long Road," depicting the benefits of Ethyl gasoline, to Kiwanis, Rotary, church, and school clubs. — New Year's Eve, we were having a party at my house, and Frank Baxter dropped in to help sing "Auld Lang Syne." Both Frank and Carl Wilson are still working with the American Optical Company at Southbridge, Mass. They are the sole survivors of a group of our classmates who went to work for that company after graduation.

Not long ago I had dinner with Jim Burnham and his charming wife in Schenectady, N.Y. The last time I had seen Jim, about two years ago, he was working in the research department of General Electric and spending his spare time building a lightweight kayak out of many layers of shellacked paper. Now he is working in the turbine design department and is spending his leisure moments designing a miniature racing motorboat, which he is planning to build, engine and all. The engine, complete, is about the

size of a small hen's egg, and Jim is going to do most of the work on it in his machine shop in the basement. Well, it's nice work if you can do it, but, personally, I prefer a hobby that does not put such a strain on the eyes. — Sammy Goldstein has taken the final step. On December 19 he was married to Miss Bernice B. Feinstein of Dorchester. Sam is in charge of the air-conditioning division of the Boston Appliance Corporation. — There has been a remarkable dearth of news from you men in the last month, and if I do not receive letters from you, how am I going to keep you in touch with the activities of the Class? Please be nice, sweet, considerate fellows — grrr — and break down and write a few lines. — JOHN G. CALLAN, JR., *General Secretary*, 24 Quincy Street, Cambridge, Mass. ROBERT C. BECKER, *Assistant Secretary*, South American Development Company, Apartado 655, Guayaquil, Ecuador, S.A.

## 1935

Are you one of the guilty ones who have not yet sent in a contribution to the Alumni Fund? If so, better get it off your chest pronto. The Class is still a long way from its objective, so do your bit now. Those of you who have already contributed can give great assistance by getting after the recalcitrant members. Let's show the rest that the Class of 1935 is tops in loyalty to Tech.

There is the usual crop of marriages and engagements this time: Otto Thelen and Elizabeth Manson have announced their engagement. Otto is working for the Buffalo Niagara Electric Corporation. — Buckley Crist and Carolyn Beardsley were married on December 22. Buck has been working for the Calco Chemical Company in Bound Brook, N.J., since graduation. Guess Buck took Tubby Rogers' advice: The fair lady is the daughter of the technical adviser at Calco. — August Zinsser, Jr., and Carol Smith said, "I do," on December 27 in Cambridge. August received his M.S. with us in 1935. He is now working for the Sikorsky Aircraft Corporation in Connecticut. — Rumor has it that Tony Dauphine is engaged.

On December 23 a daughter was added to the family of Pat Koenig. Par's employer (?) is Koenig Oil Investment Company in Dallas, Texas. — Charlie Kuebler has added a potential Alumnus to his family; the eventful day was July 25. Charlie has been working on a national park development near Summit Hill, Pa. His work consists of surveying, as chief of party, and the drawing up of plans for the development. — Max Nohl certainly did make the papers with his record-breaking descent into Lake Michigan. The news clippings have been pouring in ever since. The latest came from Professor Hudson '07. He also inclosed a note stating that, as he understands it, Max's trials in Lake Michigan are preparatory to an attempt to retrieve treasures from the S.S. *Lusitania*.

Only letter of the month is from Hank Ogorzaly. Hank killed two birds with one stone: He wrote a letter and sent in



1935 Continued

his Alumni Fund pledge at the same time. Some more of you might try that idea. As you know, Hank spent a year in the Chemical Engineering Practice School as a student and another year as assistant director. Last October he went down to Baton Rouge, La., to work for the Standard Oil Company of New Jersey in their development division. He has been working most of the time on hydrogenation, puts in some time on patents, and occasionally gets into other lines. Hank was in Baytown, Texas, some time ago and ran into Sunny Sundstrom at the Humble Oil Company — says that he is "big and smiling as ever and seems quite pleased with his work in the technical service division of the Humble plant."

Visitor of the month to my humble domicile was Charlie Smith. He has been back at school for a short time, having completed another term at the Buffalo Chemical Engineering Practice School as assistant director. He mentioned that Les Brooks is now studying at the University of Illinois, and that Dave Buckwalter is somewhere in New Mexico now — job unknown. — That's the story for this time. Better drop me a line soon and help improve the future class notes. — ROBERT J. GRANBERG, *General Secretary*, McCulloch B-13, Soldiers Field, Boston, Mass. RICHARD LAWRENCE, *Assistant Secretary*, 111 Waban Hill Road North, Chestnut Hill, Mass.

## 1936

In only three months now, the Great Court at Technology will be decorated with the banners of the various Classes, and the Alumni will be enjoying their day. The date to be remembered is Monday, June 6 — Alumni Day. Really, we hope to have a good representation from the Class of '36 at the event. The schedule includes a formal farewell to the Rogers Building, a symposium dealing with the impact of modern science and engineering on modern arts, buffet luncheon in one of the courts, dedication of the new Architecture Building, dinner at the Statler Hotel with "an entertainer of international reputation," and numerous "informal reunions." Hope to see you all there!

*Course I.* Most important event of recent months was the marriage of Frank Lesard to Miss Virginia Luther of Brockton on December 31. The bride was known well by Frank's friends at school, and they all wish the couple the best of everything. — The next marriage for members of this group will probably be that of Stan Levitt to Miss Hilda Janet Simmons of Greenville, Miss., which is slated for next June. Stan was with Waddell and Hardesty until the middle of December and is now working for Ash, Howard, Needles, and Tammen, also in New York City. While at Waddell and Hardesty he assisted in the design of the Trylon for the 1939 New York World's Fair and the Flushing River Bridge. Richard Lee '26, regularly employed in Robinson and Steinman's office, was there part time on the down stretch of the latter job. Ash, Howard, and so on, are finishing up a

basculine in New Haven and are just starting a lift span over the Passaic River in New Jersey. Stan reports that he met Lester Cohen, VIII, and that he was in New York attempting to market a Rube Goldberg cost analyzer for the corrugated industry.

Another long letter came from Bernie Gordon, who turned up down in Vicksburg, Miss. Here's how he explains it: I've been in Vicksburg since the first of December. . . . At present I'm working in the soils lab of the United States Waterways Experiment Station which is located a few miles out of town. The lab in Concord, N.H., where I had been previously employed, had been established only for the purpose of the flood control surveys of the Merrimac River, and (with) . . . the cessation of the flood-control work, the lab was shut down. The opportunity to come down here arose, and the transfer was eagerly accepted. . . . In the 17 months that I worked in the Boston district, I had contact with every phase of the flood-control work from surveys to final design. . . . Our work (at the Waterways Station) is concerned with the lower Mississippi, from Memphis down, but difficult problems arising in any of the engineers' districts in the country are sent down for solution. My work is much the same as it was in Concord, although as yet I've been occupied mostly with testing methods. . . . I ran into Bill Healey in Concord just before I left. He had just started work for the Public Health Department of New Hampshire as sanitary inspector. Bill had been acting as educational advisor to a C.C.C. company in Vermont. Mel First, VII, is in Detroit still, working in the Public Health Department. Stan Robbins, VII, is a student at Tufts Medical School. Julie Rifkin, XV, is managing his father's chain of theaters. Larry Kanters, XV, is working at Filene's in Boston, and, when last we met, we were celebrating his promotion." Bernie also wrote that Dobber Dobrowski is now employed by the Pennsylvania Railroad. Bernie and Dan Burns had a two-man reunion in New Orleans about the middle of January. Dan is traveling for the Liberty Mutual Insurance Company and says: "I have covered the country pretty well from Minnesota to Texas and from Kansas to the Appalachians — in fact, I have even been down to Mexico." He suggests that we reach him through the address, 31 Reservoir Avenue, Revere, Mass.

Jim Carr is still down in Washington, D.C., designing things out of wood. He offers: "Bill Shea was down here in the fall. . . . He was still with Professor Spofford '93. . . . Norm Carlson, IX-B, was married last fall to Miss Beatrice Fenn of Naugatuck, Conn. Joel Bulkley, XV, his wife, and son, Ed, are doing very nicely out on Long Island. Buch works with the General Motors Acceptance Corporation and spends most of his time adjusting damages on unpaid-for cars which have been involved in accidents. He was recently laid up with a recurrence of an old lacrosse injury. Carl Peterson,

XV, is still with the York Ice at York, Pa. . . . I understand Poker is hot in the fifth at Santa Anita tomorrow. . . ." Same old Jim!

Ariel Thomas is in his second year at the University of Illinois as an assistant in sanitary engineering. He started a thesis in November and expects to complete it by June 1. Last June he had the good fortune to operate a sewage treatment plant while the board made up their mind whom they wanted as permanent operator, which gave him valuable experience. Ariel offers the news that Ted Rimbach '34 was married over the Christmas holidays and is now back in Illinois with the Mrs. — Elliott Robinson is still kept busy with teaching and tutoring and seems to like it even more than ever. He has recently seen Bill Prudente, who is apparently still unemployed, and Charlie Betts. I assume Charlie is still with Johns-Manville.

*Course III.* We are very sorry to hear that Ford Boulware was involved in an accident at the Bingham Mine. Charlie Locke '96 gives the details: "I have received direct word from Ford Boulware in regard to his accident. He was riding in the bucket which was descending the shaft in the mine at Bingham, Utah. The cable snagged in the crosshead and of course slacked, only to become loose again and slip through the crosshead, permitting the bucket and Boulware to fall quite unhindered to the bottom of the shaft. At the time he wrote, at the end of November, he was still in the Bingham hospital but hoped to be out in January and be able to do some office work until he was sufficiently recuperated to go underground again. He reported that Charlie Price and John Hayes had both passed through Salt Lake shortly before he wrote, and also that Mike Kuryla had arrived in Bingham from Mexico in October and was working underground at the United States Mine as a timber helper, with the expectation that he would stay at least a year to get experience before returning to Mexico. At last accounts, Price was in the mine of the Climax Molybdenum Company at Climax, Colo., and Hayes was in Long Beach, Calif., looking for a job."

*Course V.* Bob Sherman continues to hold down the fort at the Graduate House and in the Chemistry Department. For the class notes he offers: "During the week-end of December 11, Fred Carten was in New York to attend the Chemical Exposition. While there he spent considerable time with Willie Anslow, Don Thompson, and Harry Donaldson. Louis Stahl, who also was there, bummed around with them some, I guess. Freddie came back with the information that Louis is still traveling around for his father's business, and that Don has received a promotion; he is with the United States Rubber Company. Willie took the boys through the Rockefeller Institute for Medical Research and rather opened their eyes. Freddie also called up Alice Hunter Kimball but did not see her, since they were both pretty busy. Alice was up here in Boston, however, just

1936 Continued

before Christmas, and dropped in to pass a few minutes with me. She is still at the Country Day School for girls and is at present teaching chemistry. She claims that it is keeping her very busy, too. We are glad to hear that her Tech training is proving directly useful, anyhow. From Professor Milas I learned the other day that Ben Dayton is now working for a doctor's degree at the University of Rochester. I was pleased to hear that he was about, since he has been out of sight, so to speak, for quite a while now. Activities around here are, naturally, much the same as ever. Mitch Sieminski, who is still with the Textile Course, recently won first prize for some photography in the Boston Sunday *Advertiser*. He also had pictures of himself in the paper.

"Barney Vonnegut is now working in the Chemical Foundation here, under Professor Williams '02, on stainless steel, but is continuing work on a thesis for his graduate degree. Charlie Saffer has become recently quite a social entertainer: He has had several of the boys down to his house for meals, and, I am told, is a royal entertainer. Freddie, Willie Anslow, Harry Donaldson, and *naturally*, Joe Ackerman, took dinner there over the Christmas week-end. Charlie is surely accomplishing a lot in short time; he hopes to receive his Ph.D. sometime this year. Bob Price, who is at the University of Vermont as exchange for Professor Braun (your General Secretary is sorry the name was not correct when printed before) here at Tech, was around here during the (Christmas) vacation. He seems to like Vermont and the school, though he finds teaching all his courses plenty to occupy his attention. Freddie Carten has passed — to the amazement of staff and students alike, and most especially of Professor Huntress — an almost errorless term of lecture assisting. When last interviewed, Mr. Carten stated that he owed his success to the fact that he never assumed anything. I said, 'Almost': Just today he managed to break a bottle containing some solvent, used for display purposes; and this, just after the interview. He did manage not to drop a bottle of mustard gas, so congratulations are still in order. . . . Brent Lowe rode down on the train not long ago with Sam Loring. . . . It was the first time any of us have seen Sam for a long time. Brent was in New York, not far back, and saw Clax Monro who seems to be quite absorbed with his work (with the J. Walter Thomson Company, advertising). Stan Smith dropped in on me before Christmas. He is now with Heyer Products Company and living at the Y in Passaic, N.J. . . . I have managed to do a bit of magic this fall. I gave a show for the commuters, one for the local chapter of the DeMolays, and . . . one at the Graduate House Christmas party. . . . Unfortunately, my work in that direction has yet to teach me how to obtain a doctor's degree without study, so I must close now."

Course XIII. The following has come from the typewriter of our loyal correspondent, Art Wells: "Ed Brewster

sends word from Baltimore, where he and Jim Henderson are employed by the Maryland Dry Dock Company. Recently, Ed's worries have been in connection with the reconditioning of Bull Line's *Barbara*. Last spring Ed bought a 22-meter sloop, a little on the heavy-weather side. He says that he and Jim had a grand summer of racing, but that they could have used a little more wind than they generally raise in those parts. Ed is living at 21 East Eager Street, Baltimore. I stopped in for a while at the Motorboat Show the other night and found two of our Class there, representing their respective companies. Bob Johnson was doing his part for International Nickel Company. Mr. and Mrs. Johnson are living in New York City at 740 Riverside Drive. Not far from Bob's booth was that of Lucian Q. Moffitt, Inc., exhibiting Goodrich Cutless bearings, and there I found Art Mayo, who had come East with Mr. Moffitt for the show. I found Art very enthusiastic about his work, the product, and the prospects. After talking with him for a while, I tried to steer Art around to give me a sample of his sales talk, but he put me in my place properly by stating nonchalantly that the product didn't need to be sold. One of Art Mayo's visitors at the show was Milt Brooks, who is now with the American Locomotive Company at 30 Church Street, New York City, in their Diesel engine division." — Art is certainly covering Course XIII thoroughly, I can add only that Alexander C. Veasey, XIII-A, a lieutenant, is now stationed aboard the U.S.S. *Indianapolis* at San Pedro, Calif.

Course XVI. Some news about the aeronautical boys comes from Bus Schliemann: "Koegler took some time off over the holidays (Christmas) and I had the opportunity of seeing him. While he has not become as enthusiastic as a native-born son of the great state of California, it doesn't sound too bad from his description. (Dick is with Consolidated Aircraft in San Diego.) He spent a lot of time at home trying to see all the fellows who live near by, and no doubt many of the boys saw him while he was East. From him also comes word of Runkle, whom I have not been able to contact. Runk is now with Curtiss in St. Louis, which explains why I got no reply from letters addressed to him at Sikorsky in Bridgeport. With him are Chapper and Dashefsky. . . . Also during the holidays I saw Marc Warmuth, who is still with Fleetwings, and apparently pretty well satisfied there. I received a letter from John Myers, who, taking the five-year Course, has been looking for a location since last June, but unfortunately has not been able to find anything. He didn't say whether he was trying to break into aviation or business. I recently had word from Ernest Linke, whom some of you may remember from our first year and a half but who had to leave us then. After becoming enthusiastic about architecture for a while, he seems to have settled into electrical engineering, studying at Newark Tech and working at Westinghouse in Bloomfield, N.J. . . . Saw Schlies-

tett up at school recently. He has been working for Doc Draper '26 lately." In addition to the news given by Bus, we find that George Trimble is with Glenn L. Martin in Baltimore, Bill Boland is at the United States Weather Bureau's Candler Field station in Atlanta, and Francis Black, as lieutenant, has been assigned to the U.S.S. *Chicago* at Long Beach, Calif.

At the December 9 Technology Club of New York dinner at the Hotel Astor, the following members of our Class were present: George Robinson, who is working for Hart Products and living at 74 Grove Avenue, Woodbridge, N.J.; Dick DeWolfe of M. W. Kellogg Company and Ed Everett; Sidney Levine, who is in New York, still looking for something; Winthrop Scott, also unemployed; Bill Orrison, with Gibbs and Hill, engineers; Jack Austin, who has entered the fold of the Union Carbide and Carbon Corporation; Dave Werblin, now with John-Manville Corporation; Art Jaeger of R.C.A. Radiotron; and Dick Denton from G.P.I. — General Printing Ink.

Bob Erwin, XV, is studying at Harvard and living at the Soldiers Field Dormitories. General Electric in Schenectady has claimed Bob Caldwell, VI-A, and Paul Lebenbaum, VI. The engagement of Aaron Loomis, XV, to Miss Natalie High of Brookline, a senior at Smith, has been announced. Jim Ullman, X, is engaged to Miss Sylvia L. Liebman, a senior at the Wheelock School. Harold Carmichael, VI, who is now studying at Northeastern University, is engaged to Miss Elizabeth Favour, a graduate of Mount Holyoke College. Dick Patterson, VI, is engaged to Miss Marjorie Josephine Smith of West Somerville. The engagement has been announced of Malcolm Seymour to Miss Mary de Forest Wilson of Cohasset. Miss Wilson is a graduate of the Winsor School, attended Bryn Mawr, and is a member of the Boston Vincent Club and the Junior League. Fred MacDonald, IV, was married last November to Miss Catherine M. O'Brien. In conclusion, Wallace Woods, X, who is studying for his Ph.D. at the Institute was married, December 27, to Miss Lydia V. Hinckley. The bride is a graduate of the New England Conservatory of Music. — ANTON E. HITTL, *General Secretary*, 100 Highland Avenue, Buffalo, N.Y. ALLEN W. HORTON, JR., *Assistant Secretary*, Room 3-210, M.I.T., Cambridge, Mass.

## 1937

The notes this time are short because of influenza, which struck me down in the middle of December and has had me completely subdued since. Last month's notes got out by virtue of my pulling myself out of bed. Not so this time, but I will tell you that I had letters from Irv Tourtellot, Al Woll, Archie Ahmadjian, and Norm Birch — all of which I'll tell of next time. This will give you an opportunity to get your letters mailed before we again go to press. — WINTHROP A. JOHNS, *General Secretary*, 114 Beechwood Avenue, Bound Brook, N.J.

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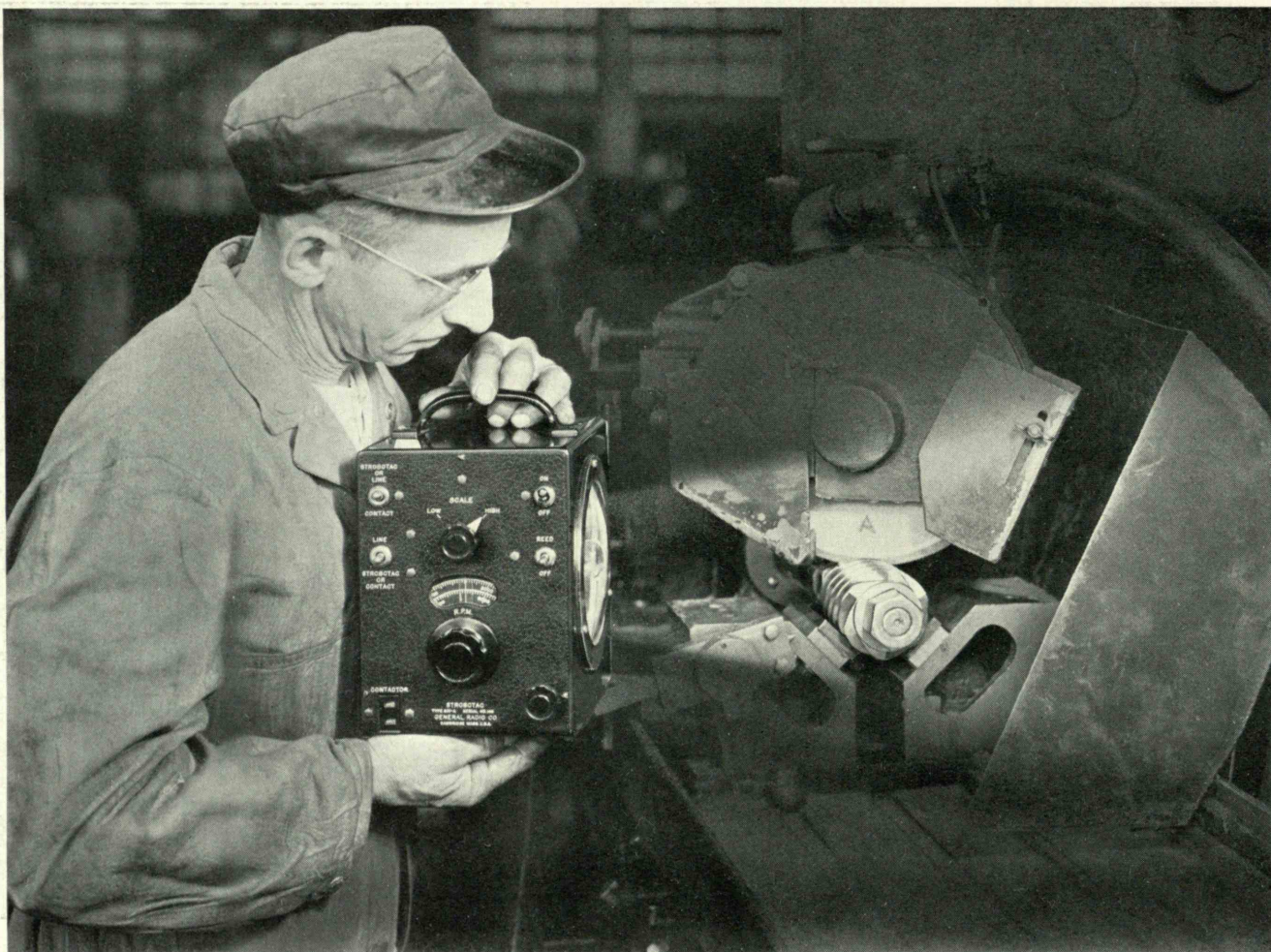


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